THE OIL WEEKLY

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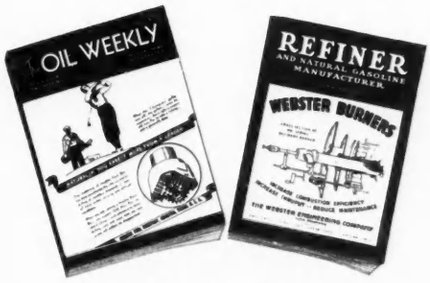

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The Oil Man's Calendar

DEC.	
28–30	**American Chemical Society, Organic Division, Richmond, Va.**
1938	
FEB.	
14–15	**Kansas Oil Men's Association, Annual Convention and Exposition, Hotel Broadview, Wichita.**
14–18	**American Institute of Mining and Metallurgical Engineers, Annual Meeting, New York.**
17–18	**Mid-Continent District, American Petroleum Institute, Division of Production, Herring Hotel, Amarillo, Texas.**
MAR.	
16–18	**Annual Meeting, American Association of Petroleum Geologists, Roosevelt Hotel, New Orleans, La.**
24–25	**Southwestern District, A.P.I. Division of Production, Spring Meeting, Blackstone Hotel, Fort Worth, Texas**
APR.	
28–29	**American Petroleum Institute, Eastern District, Division of Production, William Penn Hotel, Pittsburgh, Pennsylvania.**
MAY	
12–14	**National Oil Scouts Association of America, Tulsa, Oklahoma.**
14–21	**International Petroleum Exposition, Tulsa, Oklahoma.**
23–25	**American Petroleum Institute, Eighth Mid-Year Meeting, Wichita, Kansas.**
	Natural Gasoline Association of America, Hotel Tulsa, Tulsa.
	American Gas Association, Natural Gas Department, New Orleans, La.

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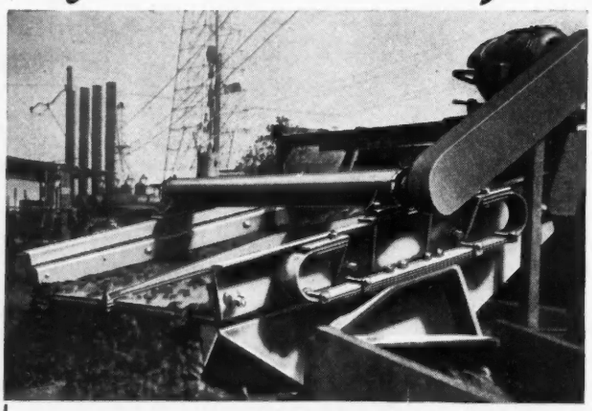

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LOOKING AHEAD

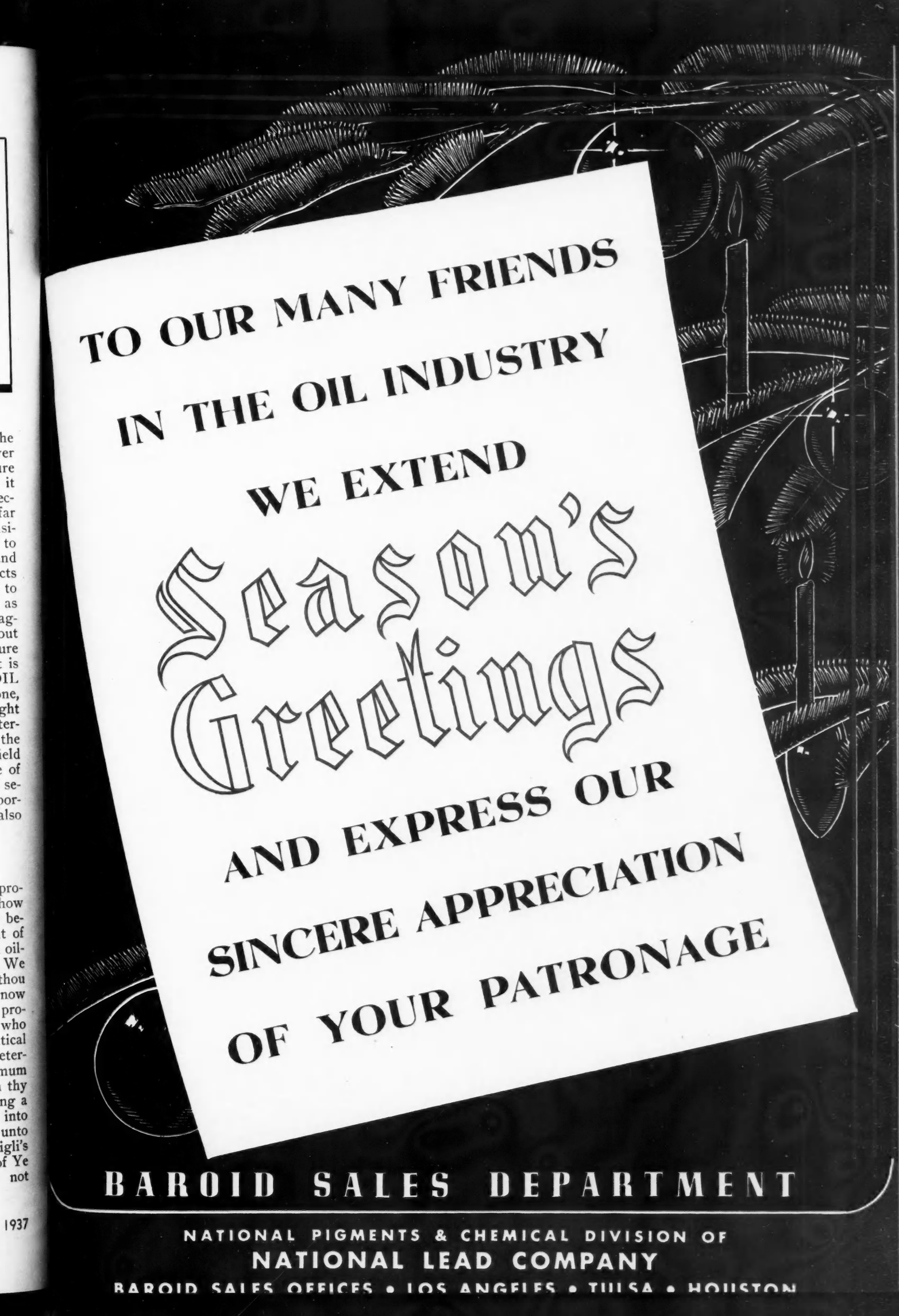
WITH THE EDITOR

Tank Abuse Is Severe, But Can Be corrected . . .

Proper Portion of Chemicals for Treating . . .

IT'S a rocky road to travel, the one a field storage tank goes over between the point of manufacture and final dismantling. Whether it is transported assembled or in sections, the poor old tank gets far more abuse, generally, than a sensible engineer would design it to stand. If he designed it to stand what the average Mr. You subjects it to, Mr. You couldn't afford to buy it. Or ship it either. Tanks, as we know them today, are not fragile containers that collapse without warning, but they are by nature vulnerable equipment. And that is why an early issue of The OIL WEEKLY, probably the next one, will start the New Year off right for Mr. You by carrying an interesting article by Brad Mills on the care and maintenance of oil field stock and storage tanks as one of the book's "Equipment Care" series. Material selection, transportation, and construction will also be discussed in the article.

DON'T look if you're not a production man. But if you are,—how long didst thou fiddle around before finding the proper amount of chemical needed to break down oil-water emulsions on your lease? We think a goodly while,—or else thou wert a lucky guesser. But now cometh one Henry Cavigli, by profession a petroleum engineer, who by divers gadgets, mathematical tables and experiments hath determined how to tell ye minimum amount of chemical needed on thy lease, to say naught of devising a mode for injecting ye stuff into crude flow lines. Thus, we say unto you: "He that misseth Cavigli's dissertation in an early issue of Ye OILE WEEKLIE wotteth not what he doeth!"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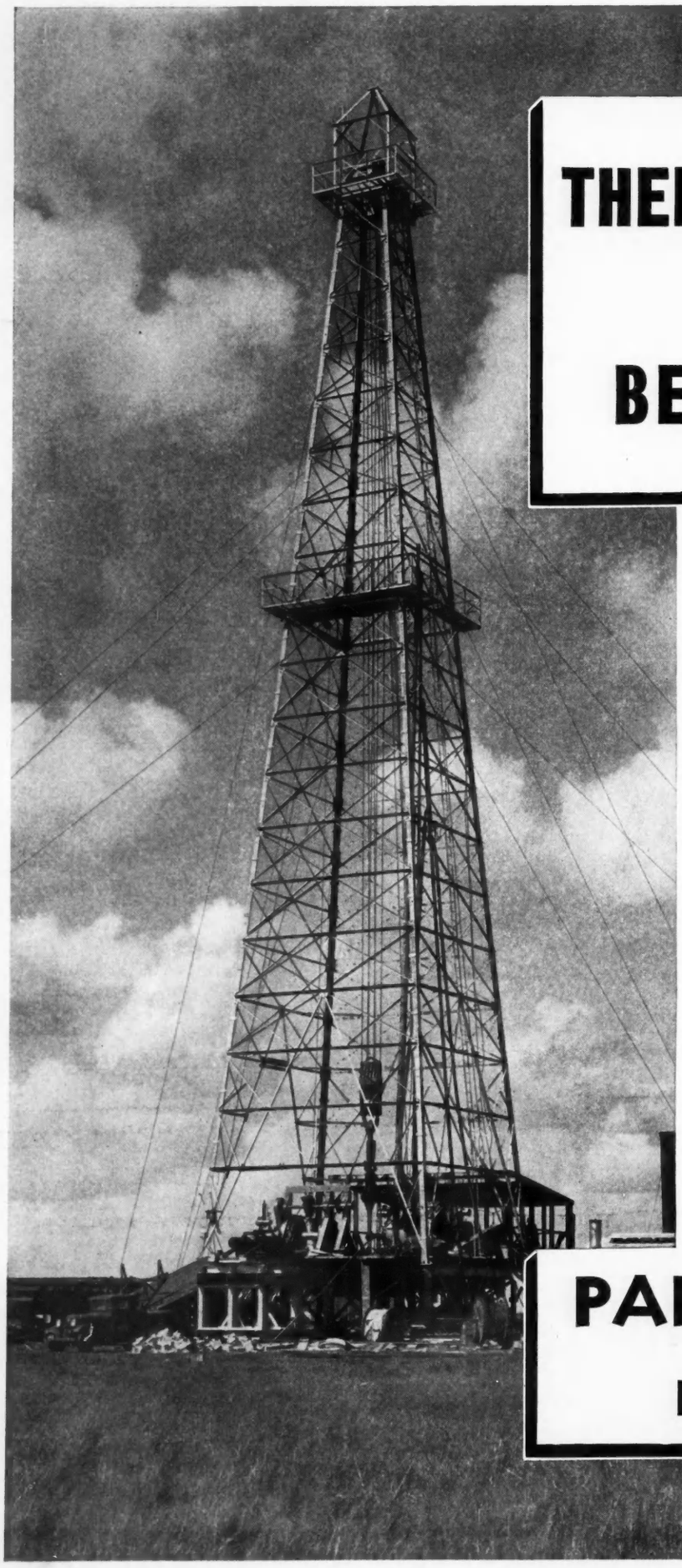

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DERRICKS

The changing panorama

ALTHOUGH the oil industry's markets in the past several weeks were giving promise of becoming more stable, they now are again exhibiting unsteadiness; and the general outlook remains obscure.

Gasoline tank car prices at the refineries have declined another ⅛ cent a gallon on some grades and in some districts.

Although the crude oil market continues to resist downward pulling forces, its precarious position has been further manifested, through local crude price cutting in the Lisbon field, North Louisiana, and in the Schuler field, Arkansas.

The fact that the general crude market has been able to hold its ground undoubtedly has been due in large part to the exceptionally strict control of crude production in recent months.

Similarly, a continuation of present prices through the uncertain months ahead probably can be achieved only through an extension of the current strict control of production.

Price Parley Scheduled

The conference of oil states' governors sponsored by Oklahoma's chief executive, E. W. Marland, designed to promote stabilization of crude oil prices, will occur at Hot Springs, Arkansas, January 24.

Governor Marland's invitations to participate in the meeting have been accepted by the governors of Arkansas, California, Colorado, Kansas, Michigan, New Mexico, Utah, West Virginia, Wyoming.

Silent on the invitations were the governors of Illinois, Kentucky, Louisiana, Montana.

Declining to participate were the chief executives of New York, Tennessee, Texas.

Warns Against Trust Laws

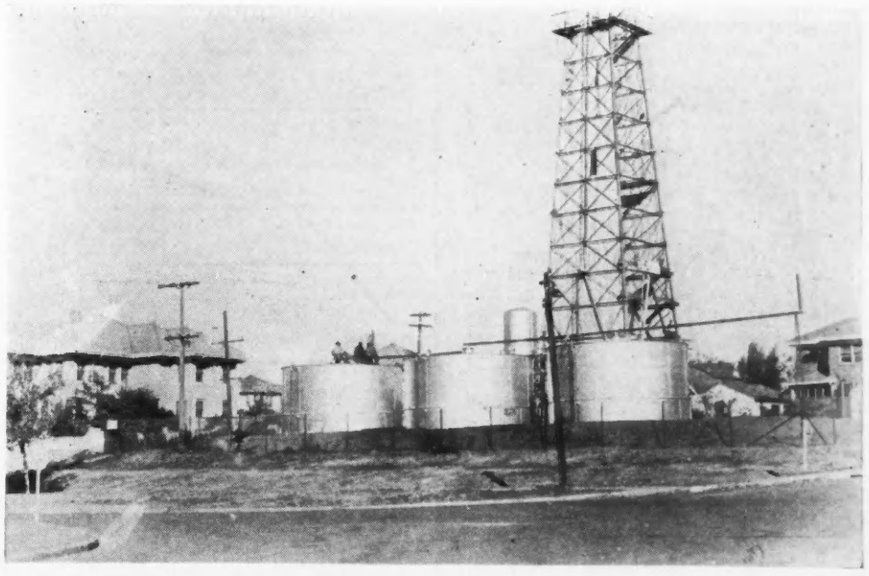
Reason given by Governor James V. Allred of Texas for declining the invitation was that governors, as well as corporations, are subject to the anti-trust laws. He declared that the governors cannot get together to peg oil prices with any less immunity than oil companies; that government officials cannot do for oil concerns what they legally cannot do for themselves.

It so happened, moreover, that Governor Allred's background gave weight to his assertion. For it was he, as attorney general of Texas, some years ago, who instituted the state's famous suit against major oil companies, charging monopoly practices in oil marketing, and seeking the ousting of the concerns from the state and $17,000,000 penalties. That suit, incidentally, has been set for trial next October 3 in district court at Austin.

Federal Men Invited

Circumstances indicate that the governor of Oklahoma may have listened intently to the counsel of the younger governor of Texas. For subsequently, Governor Marland, a New Deal Democrat, sent an invitation to President Roosevelt to send federal officials as observers to the crude price stabilization conference.

Governor Marland also has taken other steps in



WHEN DEVELOPMENT moved into the north end of the Oklahoma City pool, property owners of the Lincoln Terrace addition went into the state courts with their plea that plat restrictions were sufficient to keep derricks out of their back yards. They were sustained, and 320 acres were left free while the field surrounded the area.

By some kink in restrictions, one home site was left out of the plat restrictions, although it is in appearance a part of the addition. The well drilled there was across the alley from the home of W. S. Key, now a candidate for governor, who was one of the leaders in keeping Lincoln Terrace free of drilling.

This proved too much, so Key asked for an injunction in federal court by which the city would be restrained from its refusal to grant permits. The federal court, however, held that plat restrictions were sufficient authority for determining where wells shall be drilled within a city.

The decision is subject to appeal but the impression is this move will not be taken since the time element will be against development. Before a decision could be gained, drainage will make the area unattractive. It looks like the beginning of the end for drilling at Oklahoma City.

in the second place, by appointing a geologist-engineer to assemble and present, at the meeting, data on the nation's oil reserves. Presumably, the oil reserves data will confirm the need for conservation of oil.

However, the Oklahoma governor has not sought to cover up his real motive—the promotion of favorable crude oil prices. He openly said, in the beginning, that the conference was designed to bolster the oil markets. And he justified the proposal by the assertion that consideration of price is an inalienable factor in achieving conservation. In that connection, it may be pointed out that the oil conservation laws of Oklahoma, Texas, and some other states make it permissible for the administrators of those laws to take market demand into consideration in fixing allowables, a privilege bordering closely on price-stabilization.

The Hot Springs conference possibly will prove constructive, even if it does no more than promote good will and cooperation among the officials of the oil producing states.

But tangible results probably will be inconsequential and the effect on crude prices smaller. For the economic winds that sweep along are not readily turned aside by the heated air and tobacco smoke emanating from a conference room.

Furthermore, the real need for such a conference is lessened by the existence of the Interstate Oil Compact Commission. That agncy already is doing a good job of promoting good will and cooperation among the oil producing states. And it has the advantage of legal sanction: by Congress as well as legislatures of the participating states. The Hot Springs conference will not have such legal soundness.

On the contrary, the meeting of the governors embodies possibilities of adverse effects on the oil industry. In bringing up the subject of deliberate pegging of prices, the move puts the industry on the defensive against possible renewed demands for federal control of the industry.

Drilling

WITH 49 operators already active in K-M-A, North Texas, it is anticipated the list will be swelled to 100 when drilling reaches the peak. This week the field recorded a mile west extension and indication of a 7000-foot northeast extension. Geological correlations presage additional additions to the proven area before the year is closed.

West Texas recorded a 1¼-mile southeast extension for Wasson and favorable developments in an outpost 1¼ miles northeast of the field. The third big well in the east extension of Jordan pool gauged 124 barrels in 30 minutes against 150 pounds back pressure on the casing with drill pipe in the hole.

California hopped into the picture with possibility of completing one of the world's deepest producers in a Santa Fe Springs well testing 99 feet of open hole at 11,314 feet. Favorable showing in two deep Kettleman Hills tests suggests possibility of a revival of drilling.

South and Southwest Texas was full of news. A Jim Wells County wildcat looks like a major pool contribution for 1938. Nueces County chalked up the following: the 6400-foot sand at Stratton, Nueces County, was extended 8600 feet northwest; King Ranch field was extended three-quarter miles; Luby was extended a mile northeast by a new sand at 5400 feet; a 5200-foot pay was opened at Clara Driscoll. The 6200-foot sand at Refugio got a mile northwest extension. A connecting well between Placedo and Keeran fields was put on production. Two extensions were completed for Heyser. The 7900-foot sand of La Blanca field, Hidalgo County, got a mile extension, and a 1400-foot field apparently is being opened north of Rio Grande City in Starr County. The Cole sand was added to the pays in Las Animas field. Two extensions added three miles to length of Oilton area in Webb County, where a wildcat opened Cockfield sand as a gas reserve. A new field was found in Goliad County.

Market briefs

Outlook—Persistent weakness of gasoline market is cause for concern.

Crude Markets—Generally steady.

Refined Oil Markets—Gasoline prices still sagging.

CURRENT OPERATIONS

Week Ended	Daily Crude Production	Daily Crude Runs to Stills
December 11..	3,414,450	3,200,000
Previous week.	3,387,000	3,230,000
Year ago.....	3,119,500	2,955,000

CRUDE STOCKS

Date	Crude Oil (Barrels)
December 4.....	303,034,000
Week ago.....	304,156,000
Year ago.....	287,857,000

REFINED OIL STOCKS

Date	Gasoline (Barrels)	Gas & Fuel Oil (Barrels)
December 11..	70,513,000	120,154,000
Week ago.....	70,193,000	121,329,000
Year ago.....	58,015,000	108,269,000

DRILLING

Period	Wells Completed
Past week.....	584
Previous week.....	622
Year ago.....	509
Year Total:	
This year.....	28,002
Last year.....	23,051

Technology

WHAT type of crude will be found at 15,000 feet? With drilling depths constantly increasing, this subject is receiving much attention at present. Speculation on the question involves two theories; one that a gassy and unstable crude will be found, and the other that the finding of stable crude at depths of 15,000 feet is possible. Brad Mills in an article on page 18 presents both sides of the argument.

An interesting rotary drilling rig being used in Illinois has a single coal-fired boiler plant and the latest in steam saving equipment. However, these are not the only features of the rig. Other points of interest are the method of operating the two vertical steam engines, and the unusual facilities that have been designed to facilitate rigging up and moving operations. Dismantling, rigging up and moving work has been made scientific by the owners of this rig, as you will see by reading the article on page 22.

Paul D. Torrey concludes his series of articles on water flooding in this issue. The final installment is confined to drilling and operating practices and the application of electric logging to such work, as well as his conclusions. We have never published a water flooding article that has created the interest aroused by this series—so you will want to turn to page 30.

Another interesting series running in The OIL WEEKLY is the one on circumferential field welding of casing by L. R. Hodell. Part 3 appears on page 42, and discusses running speeds and costs.

Proration Picture

Proposal that Texas production be cut 5,000,000 barrels has little opposition at hearing . . . Nine governors to attend "oil price" conference.

PRACTICALLY by unanimous consent, the Texas Railroad Commission late December 17 was preparing an order to cut back Texas production approximately five million barrels for January. Virtually no opposition was expressed at the statewide hearing Friday to the plan to drastically reduce the Texas output during the coming four weeks, by the two routes of: (1) Sunday shut-downs where they can be ordered without harm to the field; and (2) a cut in allowable equivalent to 4/30 of a month's production in all fields which cannot be closed down.

In view of dissension which has met nearly all previous innovations of the commission, the general complacency with which the oil men took the proposed cut was remarkable. One or two protestants who took the floor to replore the probable loss of a 5,000,000-barrel outlet were met with shouts of "sit down."

Austin has not seen any other meetings like that.

F. W. Fischer of Tyler, the traditional protestant, led the van of the boosters. His only qualification was that "everybody else share in the benefits that East Texas has had."

At the end of the meeting, Commissioners Terrell and Thompson expressed their appreciation for the manner in which East Texas had accepted the late shut-downs; while Commissioner Lon A. Smith said he was happy that the other commissioners finally had come around to his way of thinking.

Here are the outstanding developments at the hearing:

1. Consumer demand for Texas for January was fixed by the Bureau of Mines at 1,350,900 barrels daily. Current allowable was 1,396,842 barrels; however, this included 489,517 barrels for East Texas, which is the current, rather than the average, for that field.

2. Agreeing in substance with the commission's plan, several operators feared the Sunday shut-down would injure some wells and fields. They were assured the commission was considering this.

3. The proposal was made that everything possible be done to deter drilling for several months. The ensuing discussion brought out these two interesting hypothesis:

(A) That the marginal well law, which says that pumping wells of a certain depth may not be cut below a certain barrelage (in East Texas, 20 barrels) must be secondary to the commission's power to cut back production in the interests of preventing waste, either overground or underground. This theory, advanced from time to time, took particular significance due to the fact that it was espoused by John Boyle of San Antonio, leading independent and close friend of the commission.

(B) That a top allowable be put on all fields, and that operators within a field be forced to prorate their own leases to keep within their allowable when wells are brought in.

(C) That the constant decline in per well allowables must be halted, else in some wells—particularly those producing large quantities of water, and those with troublesome gas ratios—will be cut to the point where actual physical waste will be caused. It would be better, according to this argument, advanced by Stanley Gill of Houston, to have small storage waste than large underground waste.

The only objection brought up was that the reduction in Texas might be offset by increased imports, increased production in other states.

Regarding East Texas, Engineer V. E. Cottingham offered the routine pressure statement, showing that on November 8, pressures were 1,130.93 pounds; on December 7, 1,131.20 pounds, an increase of 0.27 pounds per square inch, or .02 pounds per million barrels of allowable per square inch.

Cottingham offered a chart showing a projection of the pressure decline curve for the three months prior to October, through 20½ months at which time, he said, the decline would have put all of East Texas on the pump.

The shut-downs have arrested the decline in East Texas; it stands to reason that similar treatment would be beneficial to most of the other fields in Texas which are water drive fields.

In the face of the commission's apparent decision upon the cut, few fields offered evidence. Thompson asked an increase to at least 15,000 barrels to meet a demand for lubricating oils. Coastal Refining Company asked a reallocation of allowables in Samfordyce, so that the demand for burning oil could be met. Greta operators claimed that continued cuts were ruining their wells, asked a readjustment. Phillips asked to be relieved of 3000 barrels of its connections in the Panhandle.

Marland's price conference set for January 24

Governors of nine oil states will meet at Hot Springs, Arkansas, January 24 to "talk crude prices." This is the response to date of the invitation of Governor E. W. Marland of Oklahoma, who injected the price angle into conservation a few weeks back (The Oil Weekly, December 6, 1937, P. 11).

Study Four Questions

Marland stated information on four important points was being assembled by Alex W. McCoy, of Ponca City. These will be discussed by the governors attending the meeting.

Following are the items to be considered by the state heads:

How much crude has been used in the last four years?

How much crude has been taken out of storage in the last four years?

How much have underground reserves been depleted in the last four years?

What are the estimated reserves of fields discovered during the last four years?

Some Governors Decline

In injecting price into proration matters, Marland took the position that price is so mixed up in all questions of conservation that it should not be ignored. At the time he said the federal government could not put a governor in jail and said the only reason oil producers do not "talk price" is the fear of prosecution under federal anti-trust laws.

Not all the governors of oil producing states agree with Marland's views, and not all are going to attend the Hot Springs "talk price" conference.

Governor James V. Allred of Texas was first to decline to attend such a conference. He said he did not presume that the federal government had no such authority and that he would not take part in such a conference regardless of federal statutes, since the conference would be but a method of doing for oil producers indirectly what they can not do directly.

Governors of New York and Tennessee also rejected the proposal.

But governors of Arkansas, California, Colorado, Kansas, Michigan, New Mexico, Utah, West Virginia and Wyoming have agreed to attend the conference. Others have made no replies.

To take potential at Turner Valley

Agreement to a proposal of Alberta government officials for taking five-day potential tests of Turner Valley producing wells to determine accurate standards on which 35 percent proration will be based was voted by members of the Petroleum Producers' Association meeting at Calgary last week.

The tests are to be made this week, and potentials established will replace those previously set following three-day tests. The wells are to be divided up into groups, each group with a potential production of 3500 barrels a day. Since the potential production of some wells to be tested will have dropped since the last test was taken, it is expected that the proration percentage may be set higher, but the total production of the Valley will not be changed.

Kansas hearing Thursday

Removal of proration rules from all fields of Butler County will be considered by the Kansas Corporation Commission December 20. The application was filed by R. H. Bradford in behalf of most of the producers of these older fields. The hearing will be at the Allis hotel, Wichita. At the same time the commission will consider the application of Fisher & Lauck for cancellation of overages in the Eastborough field.

The hearing from which the January order of proration for the whole state will be held at the Allis hotel, Wichita, December 23.

Labor Situation

Shoreline plant reopens, but Shell refinery remains idle . . . Mexican strike is brief . . . Hearing is set in Pine suit . . . Employment and payrolls drop.

THE picture of the oil industry's labor situation was somewhat brightened the past week when officials of Shoreline Oil Company announced that the strike at its Lewis plant in North Caddo Parish, Louisiana, had been settled, and that workers have partially returned to work. In contrast to this peaceful agreement, however, was continuation of the four week's old strike at the Houston refinery of Shell Petroleum Corporation and the fact that there were no indications at present that work would be resumed in the near future, as recent negotiations had failed completely. The sit-down strike of 5000 oil workers in the Tampico district, Mexico, affecting the Aguila, Huasteca and Pierce companies was called off after an expiration of a 24 hour period and all men had returned to work.

Shell Mediation Fails

At several recent meetings of Shell officials and an appointed union committee, continuous efforts were made to settle the lengthy Houston refinery strike, but, due to disagreements on several points, these conferences were finally abandoned and each side blamed the other for failure of reaching settlement. Officials of the company proposed that the strikers return to work and that negotiations toward a contract begin January 5. However, this proposal was rejected by the union and possibilities now exist that the union will demand a congressional investigation, which it terms as "investigation into the conduct of the company."

Harvey C. Fremming, president of the C.I.O.'s International Association of Oil Workers, in a recent telegram to the secretary of the Houston chapter indicated that a new attempt would be made by Dr. Edwin A. Elliott, federal conciliator for the Houston district, to adjust disagreements between the corporation and the union. In an advertised statement to its employes, however, the refinery stated that no further conferences were scheduled between the union committee and the company.

Shoreline Workers Resume Work

Shoreline Oil Company and the strikers at its Lewis refinery in North Caddo Parish reached an accord last week and the strikers, who are members of the CIO., will return to work. The refinery will operate on an "open shop" basis as the refinery officials merely agreed to recognize seniority rights of the workers to which stand it had already announced itself throughout the controversy.

The refinery, however, will not be reopened immediately at full capacity, but will resume gradually and workers will be called back as they are needed. Shoreline's connections at Rodessa and in Pine Island had been assumed by other companies.

The only instance of alleged violence during the five weeks of the strike during which the strikers picketed the plant, was the issuance of two warrants for two men assertedly strikers for alleged efforts to intimidate a former refinery worker who refused to join the CIO. The officials of the CIO disclaimed connection with the alleged attempted terrorism. About 150 workers had been affected by the strike.

Mexican Workers End Strike

The 5000 union oil workers who went on strike at Tampico, Mexico, December 10, returned to work the next day at noon, on expiration of the 24-hour strike period. The workers claimed that the strike was in protest against a delay in official handling of a labor case. President Lazaro Cardenas warning that such a strike would be a violation of the labor laws failed to swerve the seven Tampico sections of the oil workers' syndicate from their decision to carry out the strike. The labor department also had tried to avert the strike through a warning that it violated an agreement employers and employes had reached October 27, barring walkouts until an arbitration verdict was rendered. Vera Cruz oil workers, who had tentatively decided to join their Tampico comrades in the strike, decided to postpone their walkout until December 20.

Pine Case Set for Hearing

The federal court hearing on W. B. Pine's application for an injunction against the Oil Workers International Union on his strike-bound oil leases in the Seminole district of Oklahoma, was continued by the court until January 4. Pine brought his suit into federal court on grounds he operates on restricted Indian lands, over which the federal government has jurisdiction. He seeks to prevent the oil union from interfering with drilling operations on his leases.

Continental Employes Receive Bonus

Reflecting the greatest business in the history of the company, Continental Oil Company recently announced the distribution of a substantial bonus among its employes. Sharing with the stockholders in the company's 1937 earnings, employes will receive a bonus that is equivalent to almost an extra month's salary, which will be followed by payment of a 25 cent dividend on December 20, to stockholders of record on November 29.

Recently in compiling a list of men who would be eligible for pension rights the management of the Whiting, Indiana, refinery of Standard Oil Company of Indiana discovered the following interesting facts:

There are employed at the refinery at

Oil in the Courts

Anti-trust trial recessed until December 28 . . . Refuse right to use letter from Ickes.

THE anti-trust suit at Madison, in which 16 oil companies and 37 executives are charged with a "price conspiracy," was recessed abruptly December 16 until December 28, after Judge Patrick Stone received word that his wife's mother had died.

During the 11-day recess, the 14 jurors who have been hearing testimony (two extra jurors were chosen at the outset of the trial) since October 4 will remain in custody of the United States Marshall.

A defense move to introduce a letter by Secretary of the Interior Harold L. Ickes, petroleum code administrator under the NRA, to C. E. Arnott, vice president of Socony-Vacuum Oil Company and one of the defendants, at which Ickes asked Arnott to designate committees to eliminate price wars which had been demoralizing the industry was overruled last week by Federal Judge Patrick T. Stone. William J. Donovan, chief defense counsel, maintained the letter, along with an opinion of the legal counsel of the Planning and Coordination committee established under the code, gave defendants complete protection against the workings of the anti-trust act. The court sustained a prosecution objection that the letter was limited to retail price wars. The court permitted, however, introduction of correspondence from the petroleum administration board showing encouragement of the defendants' activities to stabilize the industry. Introduction of the "Ickes letter," which had also been sought at the beginning of the trial, was attempted during the testimony of Robert W. McDowell, vice president of Mid-Continent Petroleum Corporation, who testified he was appointed by Arnott as chairman of the tank car stabilization committee. McDowell testified that he had seen the letter and the legal memorandum pertaining to it. The letter, dated July 20, 1934, said: "It has been brought to my attention that the market for gasoline and other petroleum products has recently been disturbed by numerous price wars in many different localities and states. This has resulted in causing petroleum products to be sold below cost in some areas in order to meet unrestrained competition, and has in turn depressed the wholesale market for

[*Continued on page 58*]

present 64 men who are 65 years of age or over. These 64 men have had continuous service in the Whiting plant totalling 1360 years.

Twenty-eight of them have over 20 years' service, 12 have over 25 years' service and four have over 40 years' service. The longest number of years of service among the men on this list is 46 credited to a man who is just 65 years old.

Although these men have the option of requesting their annuity, many of them because they are enjoying good health prefer to contiue on their present jobs.

Ruling Favors Workers

In a case brought by Ben Williamson, Jr., trustee of the bankrupt Inland Gas Corporation, Federal District Judge H. Church Ford at Louisville, Kentucky, last week ruled that employes of a federal court-controlled bankrupt corporation have the right to join any labor organization they desire and have the right to bargain collectively.

The ruling came during a hearing for an injunction sought by Williamson against 23 Knott County men on the ground that they seized and prevented well drilling activities on gas well properties leased by the corporation. The injunction plea was continued.

During the hearing, Judge Ford told John Y. Brown, attorney for the men, that the court would not tolerate anyone interfering with the operations of the bankrupt corporation's properties and that the men must not resort to force in their efforts to gain union recognition.

Turner Valley Work Slack

While the number of active tests is undergoing little or no change, the slackening of development work in the Turner Valley field of Alberta, Canada, is causing concern among Provincial government officials who are faced with the task of providing relief for unemployed workers

Many companies which had been drilling with three shifts on a 24-hour-a-day basis are slowing operations because of the danger of accidents to night workers during the severe cold weather. The present unfavorable marketing situation with respect to Turner Valley crude is also causing some operators to slacken their drilling pace.

The six-day week made effective for drilling crews December 15 by Provincial authorites will have no effect on the unemployment situation as completion last week of a pipeline project that had been giving work to 100 men further aggravated the problem. With few exceptions, drillers who have been brought in from the United States to take part in development during the peak season last summer have returned to the States.

Figures that have been released by the Bureau of Labor Statistics, Department of Labor, reveal that in September the workers in the petroleum industry had begun to feel the influence of the present business slump, as well as the seasonal dip in petroleum consumption for the latter part of the year.

In the crude oil producing division of the industry, employment in September was down 1.2 percent from the previous week, although remaining 5.1 percent larger than in September last year. The September employment was 78.3 percent of the average for 1929.

Despite the slightly smaller number of persons employed in September, the payrolls in the producing division were slightly larger than in August, because employes worked more hours per week and earned more per week, although receiving slightly lower hourly wages. The September payrolls, at a level 71.2 percent as high as the average for 1929, were 6/10 of 1 percent larger than in August and 17.9 percent larger than in September last year.

The production division employes in September received average earnings of $33.41 a week, or 1.8 percent more than in August and 12.1 percent more than in September last year. The relatively favorable weekly earnings were possible because the worker put in an average of 40.2 hours a week, or 2.2 percent more than in August and 3.2 percent more than in September 1936; although he received 83.6 cents an hour, which was 3/10 of 1 percent less than in August but 8.4 percent more than in September of 1936.

Refinery Workers Affected

In the refining branch of the industry September brought decreases of both employment and payrolls, as plant activity diminished.

Employment was down 8/10 of 1 percent from August, although 4 percent above that of September last year, being at 127.2 percent of the average for the three years 1923-1925.

Refinery payrolls in September, at 143.1 percent of the 1923-1925 average, were down 4.9 percent from the previous month, although still 23.1 percent larger than in September last year.

Refinery workers in September had average earnings of $34.16 a week, or 4.1 percent less than in August but 18.3 percent more than in September, 1936. They worked 35.5 hours a week, on the average, or 4.4 percent less time than in August but 1 percent more than in September last year. Pay received was at the rate of 97.4 cents an hour, 2/10 of 1 percent more than in August and 18.4 percent more than in September last year.

Miscellany

Texas plans ousting "tramp" corporations

Suits to cancel the permits of 200 oil corporations operating in Texas will be filed next spring, according to Edward Clark, secretary of state of Texas.

Two weeks ago Clark announced that he was making a drive on "tramp" corporations, those which are chartered in some other state and conduct all of their business in Texas.

These concerns have a permit to do business in Texas only, and Clark is of the opinion that they should be chartered here. Since they have paid their franchise taxes up to May 1, 1938, he feels that it would be unreasonable to attack them now; however, as the new tax reports are filed, he plans to request that Attorney General McCraw file suit against each one for cancellation of their permit to do business.

Clark has found some 315 corporations which operate in Texas under this plan. He points out that he does not expect to file suit against those which have obtained a permit in a state where they do no business, providing the corporation transacts business not only in Texas, but in some third state or in several states. This would exempt most of the larger corporations.

Listed below are some of the better-known corporations which Clark plans to investigate:

Mills Bennet Production Company, Houston; Reagan County Purchasing Company, Fort Worth; Cordova Union Oil Corporation, New York; Shamrock Oil & Gas Corporation, Amarillo; J. M. Huber Petroleum Company, Borger; United Production Corporation, Houston; Red River Gas Company, Amarillo; Longview Gathering System, Fort Worth; Texas Gulf Production Company, Houston; Salt Dome Oil Corporation, Wilmington; Tyler Texas Oil & Refining Company, Tyler; Cargray Corporation, Indiana, Pa.; Century Refining Company, Overton; Acme Oils, Inc., Tyler; McMurrey Corporation, Tyler; Southern Liberty Pipe Line Corporation, Dallas; Southern Pipe Line Corporation, Pittsburgh; Amazon Petroleum Company, Henderson; Texas Crusader Oil, Inc., Houston; American Liberty Pipe Line Company, Dallas; Cayuga Oil & Gas Company, Corsicana; and Coast Petroleum Company, Dover, Del.

Mid-Continent association reelects all its officers

Opposition to lowering the 27½ percent depletion allowance, now allowed oil and mining industries by federal tax statutes, was forwarded to Congress by directors of the general Mid-Continent Oil & Gas Association in annual meeting in Tulsa December 15. The meeting also devoted much of its time to consideration of proposal to repeal the undistributed profits tax.

All officials of the association were reelected: J. D. Collett, O'Keefe & Collett, Fort Worth, president; F. O. Prior, Stanolind Oil & Gas Company, Tulsa, vice president for Oklahoma; Ralph Pryor, Pryor & Lockhart, Wichita, vice president for Kansas; W. H. Francis, Magnolia Petroleum Company, Dallas, vice president for Texas; D. W. Harris, Arkansas Natural Gas Company, Shreveport, vice president for Louisiana; Van S. Welch, F. W. & Y. Oil Company, Artesia, vice president for New Mexico; Clarel B. Mapes, Tulsa, secretary-treasurer.

Special California session?

Governor Merriam of California is giving serious consideration to the subject of calling a special session of the state legislature in January or February for enactment of legislation looking to protection of the state's oil interests, having special reference to tideland drilling. The state has certain interests in the new drilling to be done in the Long Beach harbor area at Wilmington. It is also possible that certain legislation will be pushed as to tideland drilling at Huntington Beach and other points.

Less Brisk Demand Causes Troubles

Previously rising trends of oil consumption have been leveling off in recent months of declining business, making it difficult to hold production and storage down in conformity with demand.

By L. J. LOGAN, Associate Editor

ALTHOUGH the oil industry has suffered less than some other industries in the current business slump, it has nevertheless run into serious difficulties.

The industry now has reason to realize the important truth that favorable markets, prices, and earnings are relatively easy to achieve when general business is expanding but difficult to maintain when business is contracting.

This truth is based on the fact that supplies of oil can easily be held in balance with demand so long as the demand is steadily increasing, while the balancing act immediately becomes very difficult when demand diminishes, necessitating proportionate curtailment of supply.

Now Facing Difficulties

The industry now for several months has been confronted with the latter situation, in which demand has grown less brisk, while adequate curtailment of supply has proved difficult.

To meet the situation, crude oil production has been cut back materially, having been held, in fact, in recent months, below actual current market requirements. And the crude oil market so far has been holding its ground, under that advantageous condition.

But as regards gasoline, the story is sadder. To compensate for disappointing demand there has not been an adequate curtailment of gasoline production or stocks. On the contrary, gasoline storage has moved farther and farther out of line with prevailing consumption. The present inventories are definitely burdensome, being at record proportions for this time of year, and representing a considerably larger stock than at this time last year in terms of days' supply at the prevailing rate of consumption.

The gasoline supply of 70,513,000 barrels on hand December 11 was 21.5 percent larger than that held on the corresponding date last year. Yet gasoline demand lately has been barely holding above last year's curve. The domestic consumption of gasoline for October, this year, latest month for which official figures are available, was only 2.5 percent larger than for October last year. In November and December, this year, there has occurred, apparently, a continuation of the unfavorable trend of gasoline consumption; and so far, there have been no definite signs of impending improvement.

Gasoline Prices Lower

The failure to curtail gasoline production and storage into better conformity with market requirements has caused prices, from refinery to service station, to decline steadily in October, November, and December. And further sagging in the past week indicated that the bottom may not have been reached yet, although the refinery prices already are lower than at this time last year, while dealer and retail prices are only slightly higher.

The unsatisfactory control of supply and the resultant market decline obviously have resulted in considerable part from the perennial problem of turning out enough fuel oil to meet the ever-growing requirements, occasioned by constantly increasing numbers of domestic oil burners. As in previous years, the industry in the closing months of 1937 has been unable to keep refinery activity abreast of the heavy fuel oil demand without meanwhile turning out too much gasoline, despite deliberate reduction of the yield of gasoline from a barrel of crude.

Consequently, the future of the gasoline market, uncertain at best, will depend considerably on the weather and extent of fuel oil demand in the next several months, as well as on the trend of gasoline demand. The gasoline prices also will depend materially, of course, on the effectiveness henceforth of crude oil production control.

Demand Less Favorable

The less favorable trends of demand for petroleum and petroleum products lately are demonstrated in the latest monthly report of the Bureau of Mines, covering October.

In that report it is shown that total demand for United States petroleum in the first 10 months of 1937 was 10.5 percent larger than in the similar period of 1936, but that the total demand in October, 1937, was only 5.8 percent larger than for that month last year. The October, 1937, showing was less favorable than that of the previous month, when total demand still was running 9.8 percent higher than in 1936.

Gasoline Use Leveling

The trend of gasoline demand has been even less favorable than that of total petroleum demand. The total

Demand for Petroleum and Products

The table shows leveling off in October of formerly rising trends of demand for petroleum and petroleum products. The figures are from the lastest monthly petroleum statement of the Bureau of Mines.

ITEM	FIRST 10 MONTHS			OCTOBER		
	1937	1936	Percent Change	1937	1936	Percent Change
Total Demand:						
All oils	1,113,325,000	1,007,815,000	+10.5	116,583,000	110,231,000	+5.8
Domestic Demand:						
Motor fuel	436,637,000	402,279,000	+ 8.5	45,361,000	44,253,000	+ 2.5
Kerosene	42,826,000	40,388,000	+ 6.0	4,985,000	4,370,000	+14.1
Gas oil & distillate fuels	89,910,000	78,171,000	+15.0	9,957,000	8,712,000	+14.3
Residual fuel oils	270,744,000	252,305,000	+ 7.3	26,847,000	27,301,000	— 1.7
Lubricants	19,848,000	18,917,000	+ 4.9	1,972,000	1,911,000	+ 3.1

gasoline demand in October was 5 percent larger this year than last year, whereas in earlier months it had been running around 10 percent higher. Furthermore, even the 5 percent margin over October of last year was possible only by virtue of continued heavy exports, which were up 54 percent.

The domestic demand for gasoline in the first 10 months of 1937 as a whole was 8.5 percent larger than in the similar period of 1936. But the domestic requirements in October, 1937, were only 2.5 percent larger than for October, 1936. Thus the hitherto rising trend of gasoline consumption in the United States has been pulled down and nearly leveled out.

Lubricants and Fuel

Domestic demand for lubricants also has turned less favorable, reflecting reduced industrial activity in various lines. In the first 10 months of this year as a whole, domestic demand for lubricants was 4.9 percent larger than in the similar period last year. But in October, requirements showed only a 3.1 percent gain.

In contrast with general trends, demand for lighter fuel oil, for domestic burning, has held up well. In the first 10 months, domestic demand for gas oil and distillate fuels was 15 percent larger this year than last year, and in October the demand held 14.3 percent higher than in the corresponding month last year.

But consumption of the heavier oils has not held up so well, because of reduced industrial activity, railroad traffic, and shipping. The domestic demand for residual fuel oils in the first 10 months was 7.3 percent larger this year than last year, but for October, this year, there was a decrease of 1.7 percent from that month last year.

The combined domestic demand for all gas and fuel oils in the first 10 months of 1937 was 9.1 percent larger than in the similar period last year. But October, 1937, showed a corresponding increase of only 2.2 percent.

Fuel Market Firm

While the gasoline market has been causing much concern, the fuel oil market has remained favorable, largely because of the fact inventories are light in relation to the prevailing and prospective consumption.

Prices have held firmly at the levels to which they climbed earlier this year, and storage and output remain conducive to good markets.

Coal Prices Raised

Furthermore, the position of the fuel oil market has been strengthened by the recent action of the National Bituminous Coal Commission, in fixing minimum prices higher effective December 16. The order is intended to eliminate loss on production of soft coal. The commission has similar authority to that of the I. C. C. in fixing railroad rates. There has been talk of a possible appeal to the courts against the order, but the coal producers appear generally pleased with the prospect of better and more stable prices, and probably will not contest the order, at present, at any rate.

Nevertheless, many of the coal producers question the soundness of governmental regulation, despite the possibility it may prove temporarily beneficial.

The new prices, although up considerably from previous levels, are not regarded as sufficiently high to materially damage the position of soft coal competitively with other fuels.

Meanwhile, the state of Pennsylvania is making efforts to stabilize and help the hard coal industry. A state commission is endeavoring to bring about lower distribution costs, which would reduce the cost of coal to the consumer and increase sales.

Control Still Threat

The coal industry is having experience very similar to that of the petroleum industry.

In each industry, there is always a temptation to go to state capitals or Washington to ask for regulation, in the hope of gaining advantages, despite the danger that the regulation may prove a boomerang, involving adverse as well as favorable restrictions.

For the time being, however, the petroleum industry has been faring well enough, and it has been vigilantly steering clear of governmental regulation for several years; although strict governmental control of oil had strong advocates within the industry only a few years ago.

Aside from the effect it will have on competition between coal and fuel oil, the recent fixing of minimum coal prices also may have an indirect significance for the petroleum industry, in that it involves the broad subject of government control of industry and particularly of the natural resource industries.

If the federal government can fix coal prices, another logical function may be to fix oil prices.

Furthermore, if coal producers must submit to governmental regulations, they reasonably may demand that competitive industries, such as petroleum and natural gas, be brought under similar regulation.

That part of the oil industry that opposes governmental control—apparently a clear majority—cannot afford to relinquish its vigilance. The former menace to the industry's independence still lurks near.

Directional Drilling

OPENING MORE

Edwards Lime Production

By EARL S. POST, Staff Writer

APPLICATION of controlled directional drilling to make straight holes, rather than deflected ones, has opened considerable highly prolific Edwards limestone production to development. During the past several months, major and independent companies have been successfully employing this method of operation to work in the Luling-Darst Creek sector of Caldwell and Guadalupe counties.

During the earlier days of the fields, drilling necessarily was rapid to keep up with offset obligations. Logs were comparatively accurate, giving a reasonably correct subsurface picture through their correlation. They, however, did indicate rather erratic faulting along the west side of the producing areas. As a result of the structural appearance of the fields offsets to excellent producers were considered to be without the producing zone.

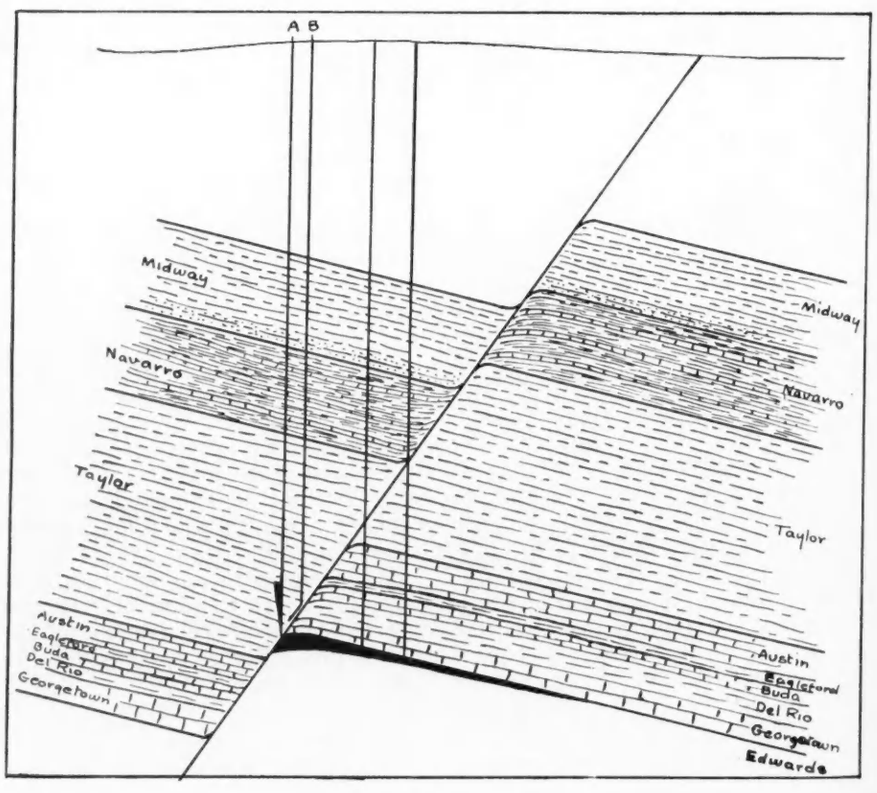
A detailed study more recently discounted this theory, and suggestion was made that crooked holes, rather than erratic faulting, accounted for the failure of key wells along the west side of the producing areas. The main faults controlling production in these fields generally have a throw of at least 350 feet. The result is that the point on the fault where the throw is the greatest is the point where the upthrown formation will be the highest. In other words, the Taylor marl on the downthrow side of the block will contact the Edwards limestone at the upthrow side.

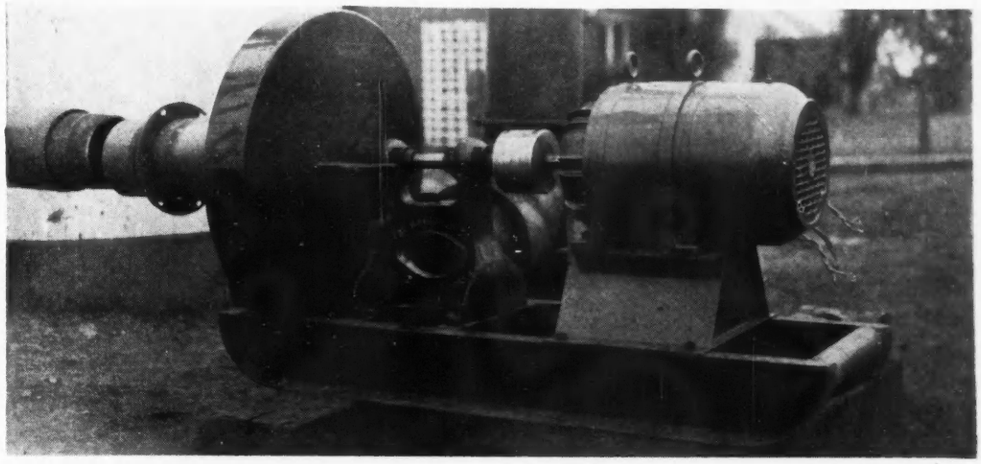
The marl is much softer than the formation at the slip of the fault, hence, the tendency is to deflect the drill bit. The bit obviously will follow the point of least resistance, following down the fault plane, rather than cutting across it. This is clearly shown in Well "B" on the accompanying illustration.

Some wells were drilled perfectly straight and crossed the fault, while others proved unfortunate operations. By correlating these logs, the abrupt turns in the main fault eliminated what otherwise would have been choice acreage. Under the new order of things, probable fault locations have been determined by drawing a straight line down trend.

The new areas have been drilled with careful determination as to the straightness of the hole. At the point of the fault plane, any possible failure of perpendicular has been overcome through the setting of directional equipment with the deflection toward the fault as shown in Well "A." Once through this zone, completion is effected in the usual manner.

It has been determined that many wells will be drilled as a result of this revised operating method, and several hundred more acres of proven territory will be placed within the producing limits. Edwards limestone recovery through this immediate trend ranges from 35,000 to 50,000 barrels average for the fields, with some leases far exceeding this figure. Just how much of this oil would have been recovered from the wells previously drilled is not known, but there is little doubt but what the tests now being completed will produce crude which otherwise may have been left in the reservoir.





An installation using a 7½ horsepower electric motor to pull dangerous gases from the well head. Motor and fan are mounted on the same base for portability. Exhaust riser is supported on a separate base.

Induced Draught THROUGH GAS VENT *Reduces Fire Hazards*

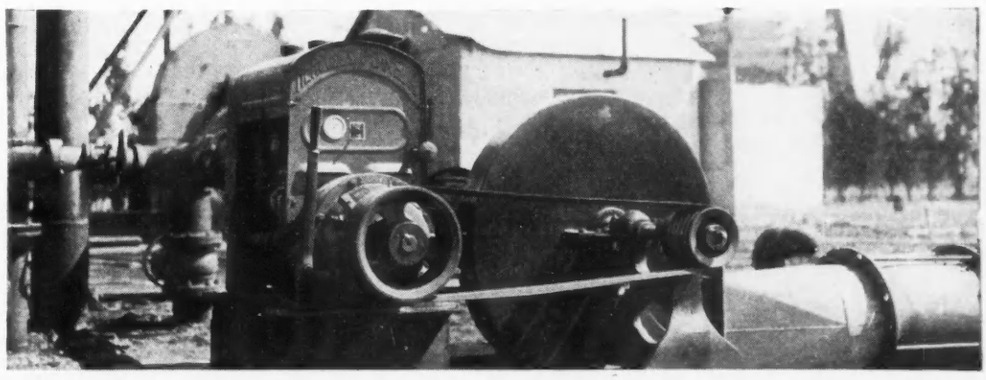
By FRANK B. TAYLOR, Staff Writer

IN order to reduce to a minimum the dangers of ignition of gas naturally produced during the servicing of wells in the Mansion area of Oklahoma City field, a number of operators have special installations to induce a draught from the danger zone. Unfortunate past experience has made the use of the equipment a practical advantage.

To draw off the natural gas as swiftly as possible during tubing or rod jobs, the velocity of the gas passing into the vent is considerably increased. This effects a reduction of the pressure in the separator and through it pulls a partial vacuum on the casing. In conjunction with the systems being used for the purpose, the vent line is a riser some distance from the well, self-supporting and freeing the gas at a height above any surface ignition danger.

Sunray Oil Company's installation, shown in the illustration, includes an eight-inch line from the separator to the intake side of the powered fan, or blower. The blower exhaust is a 12½-inch line, leading directly to a 12-inch vertical vent. A single base acts as permanent foundation and makes the unit portable. Gas fuel is provided through a flexible hose and connection to the upright power end. Other installations in the field use electric motors for power. In general, the assemblies are similar, as shown.

One operator in the field is using a gas jet within the vent line to induce increased velocity in the exhaust gas. Control of the discharge is by means of a valve on the high pressure injector.



In this Sunray Oil Company installation fumes are drawn from the separator and discharged into the air through a large riser some distance from the derrick. Power is a 7½ horsepower natural gas engine. The fan can create a pressure differential of 30 pounds per square inch.

What Type Crude

WILL BE FOUND

At 15,000 Feet

SPECULATION on this question involves two theories; one that a gassy and unstable crude will be found, and the other that the finding of stable crude at depths below 15,000 feet is more than a remote possibility.

By BRAD MILLS
Associate Editor

THE steady trend toward deeper oil production along the Texas-Louisiana Gulf Coast has aroused speculation as to the practical depth limits offered by the district. What difficulties are now standing in the way of 15,000-foot development along this producing strip? Is there a reasonable assurance that stable crude oil will be found in commercial quantities at such a depth? Will new oil reserves present a refining problem because of different characteristics of the deeper oil? Will the increased demand for natural gas justify development of heavy gas reserves below the limit for stable oil production?

The theory of today becomes either the fact or the fallacy of tomorrow. The presence of gas and unstable crude oil at depths around 10,000 feet in several Gulf Coast fields has thrown support toward the theory that only a limited production of stable crude oil will be developed in formations encountered below 12,000 feet. This theory is given little weight, however, by opposing geologists who hold that development of ordinary crude oil at a depth of even 15,000 feet is more than a remote possibility. The recent discovery of a very stable crude oil at a record depth in South Louisiana has considerably dampened the enthusiasm of the "gas only" advocates, but other more recent developments below 10,000 feet revealed a predominance of gas.

Mechanical limitations are so well recognized that they immediately become a part of any discussion affecting deep development. In theorizing on record producing depths, it is assumed that mechanical progress will continue at a rate comparable with that recorded during the past 10 years. With the present mechanical set-up and high pressures encountered below 12,000 feet, it would be difficult if not impossible to drill to 15,000 feet. Problems multiply rapidly after passing 12,000 feet, but another five years will add from 2000 to 3000 feet to the present maximum drilling depths.

An operator attempting to test formations at 12,000 feet is vitally interested in the hazards accompanying the effort. Where the chances overwhelmingly favor gas, drilling offers little hope unless a market exists or can be developed for the gas. In the remote areas dry gas is not wanted, except for use in field development. The so-called "distillate" production is more desirable, but it is still a poor substitute for a stable crude oil. When the distillate or condensate is too unstable for direct use, it may be mixed with heavier products for transportation to refineries through pipe lines, in tank cars or ocean tankers.

In future operations along the Gulf Coast, natural gas undoubtedly will play an increasingly important role. Development of large gas reserves below 10,000 or 12,000 feet will force utilization of such reserves, and probably will lead to construction of great power generating plants. The generation and distribution of electrical power on an enormous scale easily could follow development of adequate natural gas reserves. The utilization of excess gas in several fields has demonstrated the possibilities offered by a still

The Old Ocean, Texas, field, a 10,000-foot producing area, showed more gas in the top of the Frio formation than in the lower section, which lends strength to the theory that the type of crude found at exceptional depths will depend to a large extent upon local conditions.

greater excess. Deep gas reserves in the vicinity of Houston or New Orleans easily could change the industrial map of the entire Gulf Coast.

Local Conditions Important

Production of stable crude oil at record depths in the Lafitte and Lirette, Louisiana, fields, indicates that local conditions within given confines will largely determine the nature of petroleum production below 10,000 feet. The gas and unstable products produced in the Tepetate, Louisiana, Old Ocean and Pledger, Texas, fields point toward a gassy condition in the Frio formation, but increased depth in other districts may show a more favorable situation.

When producing depths along the Gulf Coast were less than 3000 feet, geologists doubted the presence or value of oil accumulations below 8000 feet. The doubt concerning the value or presence of oil accumulations around 15,000 feet has shaped itself into a problem that will solve itself only through deeper drilling than is likely with current equipment and methods. Meanwhile operators should feel little hesitancy to test formations between 10,000 and 12,000 feet, unless the immediate area has been proved a gas producer by actual drilling.

Lirette Crude Stable

The analysis of crude oil from Humble Oil & Refining Company's Ellender 1, record deep producer in the Lirette, Louisiana, field, tends to support the belief that stable crude oil will be found in commercial quantities at depths considerably greater than any yet reached along the Gulf Coast. The Lirette crude not only was a stable product, but it showed to advantage over the typical shallow Gulf Coast crudes that yield lubricating oils with a low viscosity index. The two samples of Lirette crude analyzed were 36.7 and 39 gravity, and were considered representative specimens. The gasoline content was 26-30 percent and the kerosene content was 11 percent. The quality of the kerosene was excellent, indicating that the oil was of great age. The Lirette oil analyzed was not a typical Gulf Coast crude, and strongly resembled the better grades of Mid-Continent crude. The gasoline was a 41 octane product, while the kerosene was 44 gravity and compared favorably with that produced from Eastern crudes. Depth in this particular instance apparently improved the quality of the crude oil, and did not lend an unstable tone that has been present at Tepetate and Old Ocean.

The stability of Lirette crude oil indicates that the critical producing level for that district has not been reached. Lack of quantity, rather than quality, was the greatest fault with the oil produced from a record depth of 11,615 feet by Ellender 1. The well did not make a prolific producer, and recently was plugged back to test shallower formations. Despite the record high pressures developed during the original production test, gas gave no serious trouble.

Lafitte Oil Good

The Texas Company has developed a good production of stable crude oil below 10,000 feet in the Lafitte, Louisiana, field, which is located in the Mississippi delta area. First production was found around 9600 feet in this field, and it was believed for a time that deeper production would show a predominance of gas. Productive formations developed around 10,200 feet yield a very stable 37 gravity crude oil, although of a type unlike that produced around 9600 feet. The stable

nature of all oil produced at Lafitte and the low gas/oil ratio have encouraged operators in the delta area who hold hope for oil production below 10,000 feet. The very deep formations in this area are found at much shallower depths along the Texas and southwestern Louisiana coast line.

The formation yielding the crude oil is as significant as the depth, both stable and unstable production along the Gulf Coast having established this fact. A specific formation found at various depths in a general area often carries a fairly uniform grade of crude oil, but the tendency toward an increased gas/oil ratio with additional depth has been noticeable. The tendency along most of the Gulf Coast also is toward a slightly higher gravity crude with increased depth.

Age Important

Refinery chemists analyzing the various Gulf Coast crudes have learned that the age of the oil affects its characteristics more than depth from which it is produced. Crude oil produced from the Frio formation at a depth of 6000 feet may not differ greatly from that produced from the same formation at 9000 feet in another field. Conversely, two widely separated formations in the same field usually produce crudes of different types. This is especially true where the two formations fall in radically different groups or ages. The composition of crude oil encountered at 10,000 feet in one district may closely parallel that found at 12,000 feet in another district, but it usually differs sharply if production is found at such widely separated levels in the same field.

The change in the nature of crude oil with increased depth does not worry the modern refinery. Through blending crudes and refining operations, products bordering on the synthetic will be obtained. Already crudes formerly regarded as undesirable products are being profitably utilized through blending or special treatment. Wax and paraffin that ordinarily increase with depth are no longer the serious problem they were 15 years ago. One major refiner even manufactured lubricating oil in commercial quantities from ordinary wax.

In several areas along the Gulf Coast, very deep production undoubtedly will trend toward a light, gassy and frothy crude of an unstable nature. Stabilization of crude oil of this type does not require an expensive process, and utilization of the lighter ends has possibilities. In at least two fields, the wrong impression has been gained by completion of wells in the top of the producing zones. Deeper drilling in both areas has converted high gas/oil ratio or "distillate" wells into normal oil producers, the upper gas having been shut off in favor of the more desirable, lower sand section.

When the maximum producing depth along the Gulf Coast was 4000 feet, operators gave no thought to the possibilities offered by depths twice as great. The average geologist doubted the presence of oil accumulations around 10,000 feet, while the field man believed that such a depth was too fantastic for consideration. The picture has so completely changed that the best ideas of 15 years ago appear childish.

In the face of mixed developments of the past two years, it does not seem safe to predict a steady run of barren, unprofitable or gassy formations at depths below 12,000 feet. In the areas that trend toward gas at 9000 and 10,000 feet, only gas may be found around 12,000 feet, but in sectors yielding stable oil at 10,000 feet, stable crude oil may be found at depths considerably greater than 12,000 feet.

Each area probably will have its critical producing level, beyond which profitable drilling will be the exception rather than the rule. In two or three areas along the Gulf Coast, gas has given trouble in formations that were expected to yield stable oil. This development has influenced the leasing and programs of several large operators who fear a greater predominance of gas at greater depths. There is the distinct possibility that stable crude oil will be found in formations below zones now showing excess gas. A change into a formation of greater age may give a stabilizing influence that was absent in the younger and shallower zone.

It will be necessary to drill to new formations in each district to establish the critical producing levels. The nature of the deepest producing formation in any district, however, may not be truly indicative of the nature of a still deeper productive zone. A formation carrying only gas in a series of contiguous fields may be safely branded a gas producer for a given district, but such a condition may not exist in other areas. The Cockfield formation produces a stable crude oil at Conroe, but in a series of areas nearer the coast it has shown more gas than oil. This tendency toward gas is well recognized, but a single formation can hardly be taken as typical of other producing formations. In one deep producing district along the Gulf Coast, gas in the top of a producing zone caused operators to believe the entire formation productive only of gas, but subsequent drilling to slightly greater depths opened the lower section to production of stable crude oil.

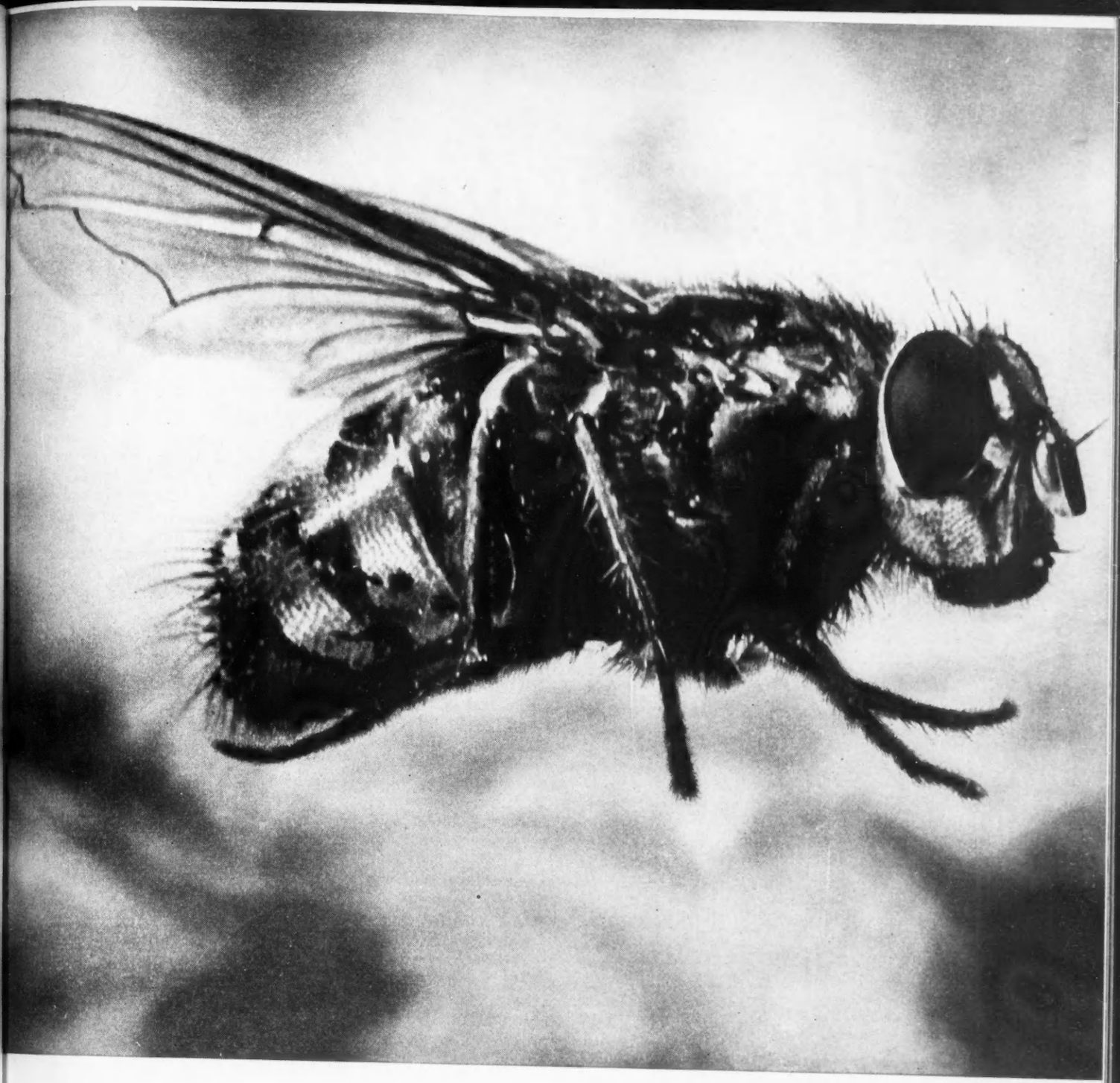
The development of great gas reserves along the Gulf Coast certainly would not be objectionable. Gas wells flow longer and at less cost than oil wells, but the cost of getting natural gas to principal points of consumption has been high. The need for additional gas reserves is acknowledged, but the search for oil along the Gulf Coast has completely eclipsed the exploration for gas. As in other major oil producing districts, the development of gas reserves has been incidental to and a by-product of the search for crude oil. The natural gas supply in two Gulf Coast fields is being utilized, following a period that offered little hope for an extensive market. Wet gas potentially is a valuable product, while the dry gas has several advantages where it is needed to complete the daily pipe line load.

Predictions a Guess

Any prediction as to the nature of production at 12,000 to 15,000 feet is little more than a guess. Where gas has been found or has been indicated by past development at considerable depths, the fear of excess gas and little oil at still greater depths seems well founded. The trend in any district has not been uniform, however, and an older formation may show more favorably for the production of a stable crude oil. It is much easier to predict the nature of production in a formation that has been tested in a given district than to place an estimate on the value of deeper and untested formations.

Deep oil production in West Texas was at one time considered a remote possibility, and Texas Panhandle oil production was doubted at any depth by many competent geologists. Results opposite from those generally expected or predicted already have transformed parts of the Gulf Coast into good producing sectors.

Deep development along the Gulf Coast has not been extensive enough to warrant a firm stand toward either the gas or stable oil theory. Both geologists and paleontologists are divided on theories involving the nature of very deep production. The drill will provide the real testing medium for deeper formations, exactly as it has done in the past.



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Goodrich

ALL *product problems* IN RUBBER

Illinois Rotary Rig Has Several Features

Coal-fired single boiler plant, steam-saving layout, and provisions for facilitating moving up and rigging up are points of interest.

By JOHN C. ALBRIGHT

A COAL-BURNING steam-saving rotary drilling rig is being used by Gillespie and Moore, contractors of Holdenville, Oklahoma, in the new Illinois Basin area.

In addition to the use of coal as boiler fuel and the installment of steam saving devices, this rig has several other points of interest. Among the latter are the provisions made to facilitate moving and rigging up operations, and the hookup and method of running the two small steam engines that power all equipment.

Equipment Used

The rig consists of the following principal items of machinery:

One 100-horsepower, 300-pound working pressure boiler.

One boiler feed unit. This is comprised of an open type 5-inch and 10-inch x 6-inch x 12-inch feedwater heater pump unit, a 10-inch x 4½-inch x 10-inch boiler feed pump for standby purposes, and a turbo generator.

One 7¼-inch x 14-inch power slush pump.

One portable double engine drive, consisting of two 7¾-inch x 7-inch vertical steam engines, with clutches, power take-offs, etc.

One unitized hoist with 7-inch shafts.

Other items include a 17-inch oilbath rotary, a 100-ton oilbath swivel, a 6-inch hook, a 66-inch streamlined traveling block, and a 200-ton center pin crown block.

Moving and Rigging Up Features

To facilitate moving and rigging up each of the first five items listed above (the boiler, feed unit, slush pump, engine drive and hoist) are completely unitized, with all pipe fittings, safeguards, and other fixtures so assembled that each unit makes one truck load. When moving to a new location, the rotary, swivel, hook, traveling block and crown block are grouped together on a single skid in proper order for rigging up. This permits the entire lot of machinery to be moved in six truck loads.

The double engine drive, including both engines, the clutches and power take-offs, is mounted as a unit on a portable structural steel base, with the steam and exhaust lines an integral part. Connections consist only of two conveniently placed unions. All safeguards on this unit are attached permanently.

The hoist is completely equipped with chains and guards, it being only necessary to place the rotary chain around the rotary sprocket and the engine chains around the engine sprockets when setting up the rig. All guards are attached permanently, and the main engine and rotary chain guards are adjustable for changes in elevation or center distances.

All three items comprising the boiler feed unit (the feedwater heater-pump unit, the standby duplex steam pump and the turbo generator) exhaust into a common exhaust pipe connected to the feedwater heater, this piping being a permanent part of the unit. Likewise, the steam, suction and discharge lines are a part of the complete portable unit, which includes a structural steel base. It is only necessary for the crew to connect the water supply line, discharge line, live steam and exhaust lines with conveniently placed unions to make the unit ready for operation.

The ease with which the above described hookup of machinery units, together with an established plan of procedure, permits the setting up of the rig at a new location with a minimum amount of labor and time required.

A heavy and light winch truck are used in rigging up, and each of the three drilling crews has definitely assigned functions to perform. Working shifts are broken the first evening at a new location, so that each tour may perform its duties without delaying operations. Surface pipe is set without a break in labor time, and almost always within the first 36 hours.

The daylight crew first sets the hoist, and then with the aid of the light winch truck the crown and traveling blocks are set and strung up. Although the rotary table when first moved onto the rig is set over the rat hole, time is conserved by using a form the shape of the rotary in preparing the derrick floor and wedge keys to recess the rotary in its regular drilling position. Even the crown block is adjusted carefully over the hole by the use of this form or template. After the rat-hole is drilled, only a few minutes time is required to place the table into its regular position, connect the rotary chain and start drilling for the surface casing landing point.

The evening tour crew puts the pit jets and suction pipe stands in first, then sets the double engine drive and slush pump, and runs the flow lines.

The morning tour crew sets the

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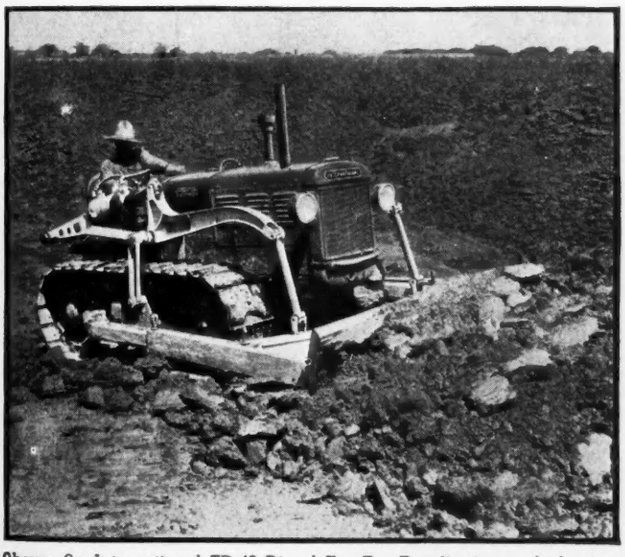
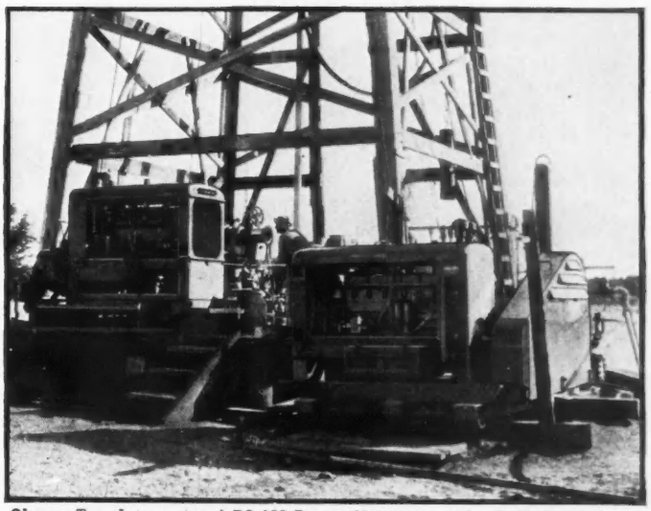
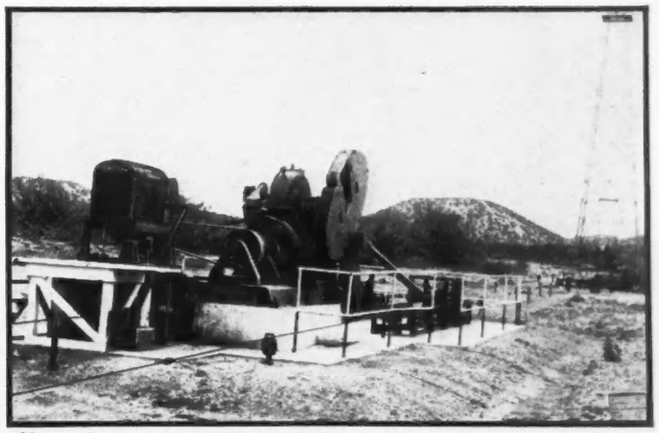


Above: An International TD-40 Diesel TracTracTor digging a slush pit in about four hours in the Clarkwood field in Texas for H. H. Howell, drilling contractor at Corpus Christi.



Above: Two International PA-100 Power Units owned by R. V. Muckelroy, drilling contractor, Lockhart, Texas, on the job near Lockhart. One of these engines drives the rotary table and winch and the other operates the mud hog at 1200 pounds pressure.



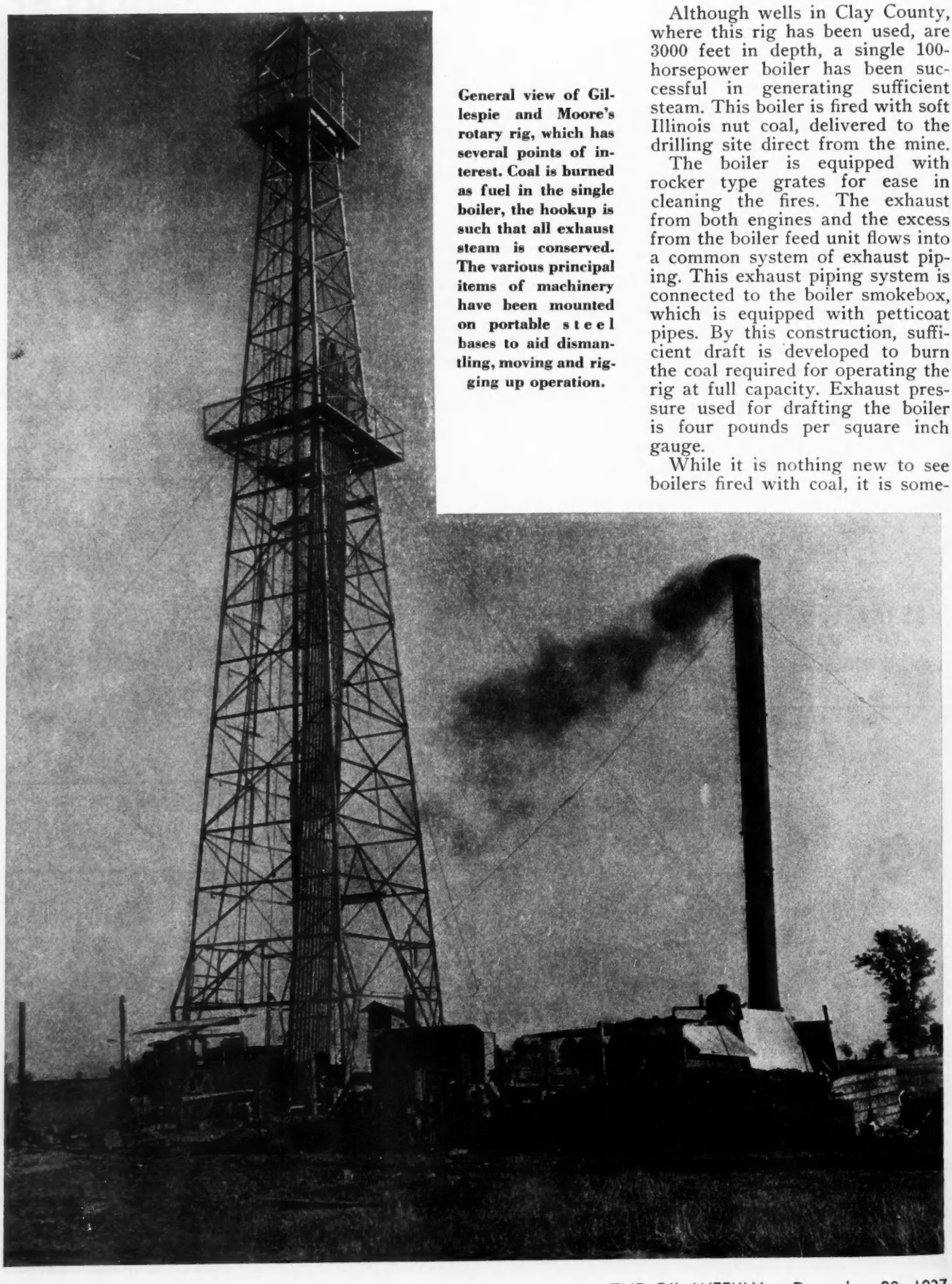
Above: An international Model 200 Power Unit furnishing power to pump four wells for the Shell Petroleum Corporation near Freer, Texas.

Below: Here is a Model PA-100 powering the pump for the Derby Oil Company in the Hauschild Pool near Sterling, Kansas.

INTERNATIONAL Industrial Power

boiler and the feedwater unit, and runs all steam and exhaust lines.

During moving and rigging up operations, the daylight crew works on through from 8 a.m. to 8 p.m., while the evening crew works from 8 a.m. to 4 p.m., and again from 8 p.m. to midnight. The morning crew works from 8 a.m. to 4 p.m., and then takes its regular shift at midnight.



General view of Gillespie and Moore's rotary rig, which has several points of interest. Coal is burned as fuel in the single boiler, the hookup is such that all exhaust steam is conserved. The various principal items of machinery have been mounted on portable steel bases to aid dismantling, moving and rigging up operation.

Coal-Fired Boiler

Although wells in Clay County, where this rig has been used, are 3000 feet in depth, a single 100-horsepower boiler has been successful in generating sufficient steam. This boiler is fired with soft Illinois nut coal, delivered to the drilling site direct from the mine.

The boiler is equipped with rocker type grates for ease in cleaning the fires. The exhaust from both engines and the excess from the boiler feed unit flows into a common system of exhaust piping. This exhaust piping system is connected to the boiler smokebox, which is equipped with petticoat pipes. By this construction, sufficient draft is developed to burn the coal required for operating the rig at full capacity. Exhaust pressure used for drafting the boiler is four pounds per square inch gauge.

While it is nothing new to see boilers fired with coal, it is some-

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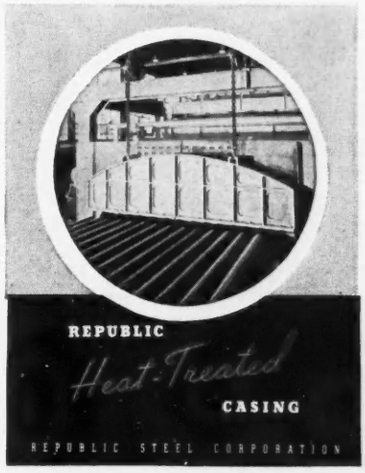

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what unusual for a rotary drilling rig to use coal for fuel, particularly if the contractors, as in this case, hail from the Mid-Continent territory. Gas in the Illinois Basin is not available at wildcat locations, and in established fields is none too plentiful. Coal is plentiful in Illinois. The cheapness of the fuel and its excellent heating qualities are factors that caused Gillespie and Moore to adopt it.

A large supply of coal is maintained at the rig, so if a truck load or two fails to be delivered at the scheduled moment, there will be no delay in drilling. Approximately 11 to 12 tons of fuel are required each day when drilling is continuous.

An evaporation test demonstrated that a boiler rating of 250 percent could be reached easily. This provides ample capacity for jetting the pits and running the rig.

Tests during actual drilling conditions at the point of highest demand gave the following results:

Hole Size	8¾ inches
Drill Pipe	4½ inches
Depth	1500 feet
Rotary Speed	125 R.P.M.
Kind of Bit	Rock
Pump Liner Size	7¼"x14"
Pump Speed	45 R.P.M.
Drilling Pressure	500 lbs. per sq. inch
Boiler Pressure	300 lb. sq. inch
Draft	0.75" H_2O
Coal Burned Per Hour	815 pounds
Heat Value of Coal	13,000 Btu. a pound
Raw Boiler Feedwater	6260 lbs. per hour
Raw Water Temperature	85° F.
Feedwater Temperature	212° F.
Steam Cylinder Oil Daily	12 quarts
Motor Oil Per Day	12 quarts

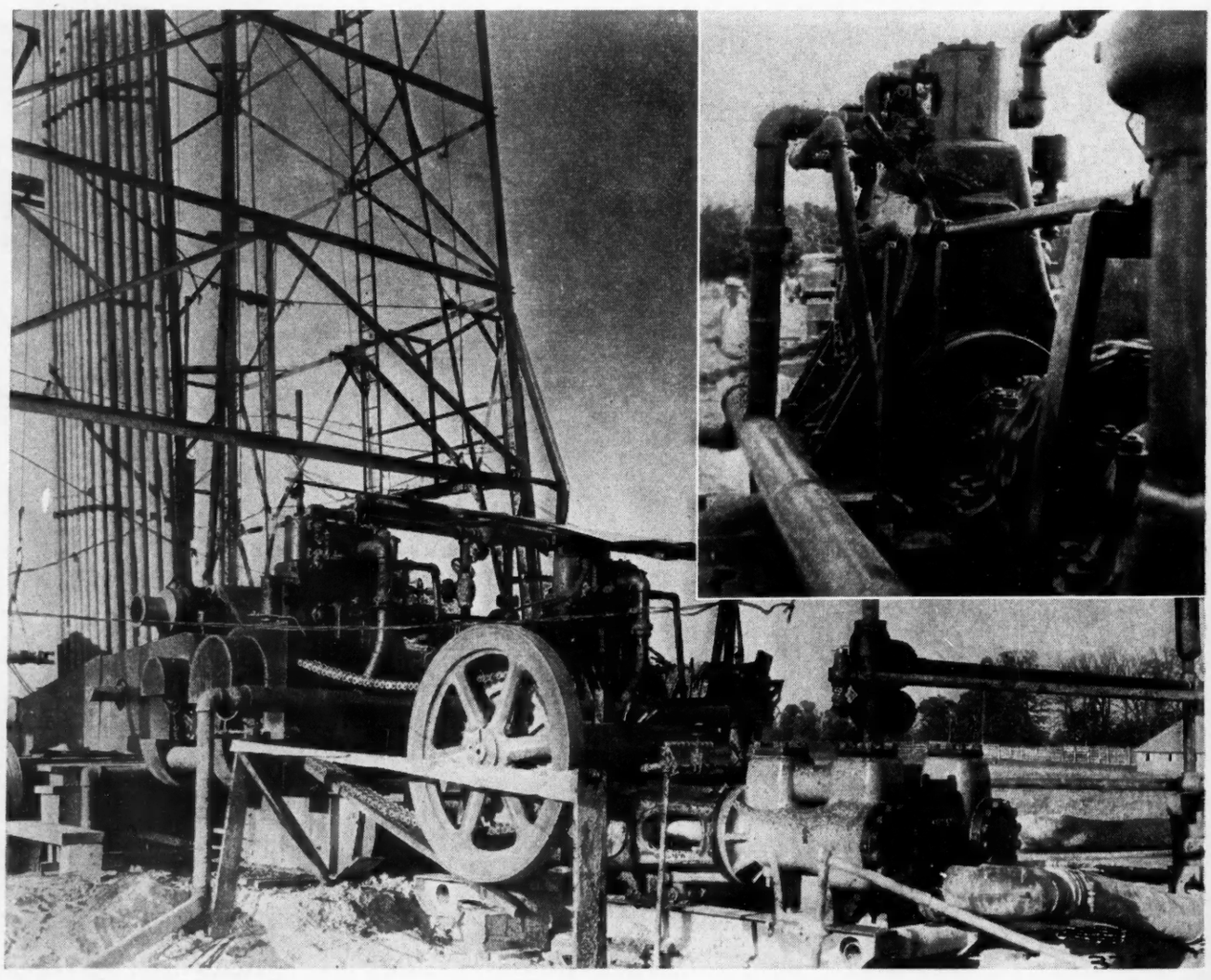
No doubt still higher efficiency and lower steam cylinder oil consumption could be had with superheated steam.

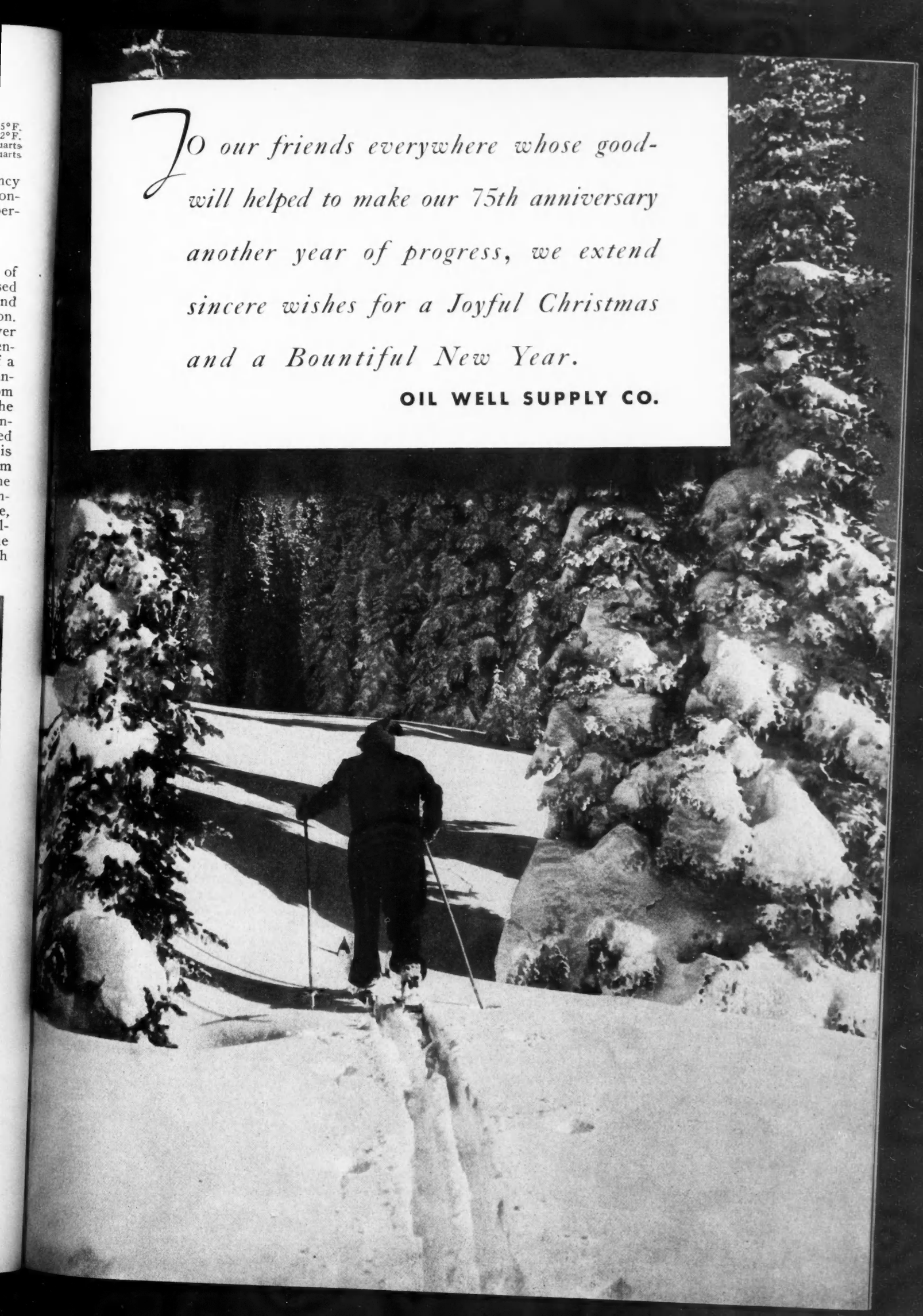
Engine Operation

During regular drilling one of the small vertical engines is used for driving the rotary table, and the other for slush pump operation. However, when maximum power for hoisting is needed, the two engines are connected by means of a clutch and operated in tandem under a single remote control from the driller's position. When the two engines are operated in tandem, the cut-off controls are locked together and a single throttle is used for governing the flow of steam to both. In other words, when the two engines are operated in tandem for heavy hoisting service, they are controlled from the driller's position in exactly the same manner as a single engine of much larger size.

Two closeup views of the portable double engine drive. The two engines are mounted on a single steel base, and may be operated in tandem or individually. The slush pump in the foreground of the lower photograph also is mounted on a skid steel base to improve movability and rigging up.

The picture at the top right shows the steam engine that drives the pump during regular operation. In the front foreground is the exhaust line of the other engine, which is used to drive the rotary during regular drilling operations. Exhaust lines from both engines are connected to a piping system that carries the exhaust to the boiler. The two clutch levers and the shaft which connects the cut-off controls of the engines can be seen in the approximate center of this photograph. When the two engines are operated in tandem the cut-off controls are locked together, and a single throttle is used for governing the flow of steam to both engines.




To our friends everywhere whose good-will helped to make our 75th anniversary another year of progress, we extend sincere wishes for a Joyful Christmas and a Bountiful New Year.
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Water-Flooding of Oil Sands

By PAUL D. TORREY
Geologist, The Sloan & Zook Company

PART 4

Drilling and Operating Practices; Electric Logging Application, and Conclusion

THIS is the fourth and concluding part of Paul D. Torrey's discussion on water flooding. In Parts 1, 2 and 3, which appeared in The OIL WEEKLY of November 29, December 6 and 13 respectively, such matters as history of the process, geologic factors affecting successful flooding, physical and lithologic characteristics of producing formations that affect the adaptability of a field to water flooding, theoretical considerations involved, and the development of water-flood properties were discussed.

An abstract of this paper was presented before the fifth annual meeting of the Illinois Mineral Industries Conference.

Drilling Practice and Surface Equipment

DEVELOPMENT of properties for water-flooding purposes will not be greatly different from the form of development used for the drilling of natural producing wells, and, under ordinary circumstances, will not present any serious engineering problems.

Water intake wells are generally drilled first. Such casing as is required is set in the customary manner, and after the sand is penetrated, the well is shot with nitroglycerine in quantities approximately similar to those which have been previously used in the field. In the Bradford field, from 100 to 150 quarts are customarily used.

After the hole has been cleaned out, two-inch tubing is run with a hook-wall packer on the end of the bottom joint. The packer is set as nearly as possible at the top of the sand section that is intended to be flooded, and from 10 to 20 sacks of cement are used to cement the packer securely in place. The tubing is generally clamped to the conductor, the surface water string of casing being usually pulled and a big hole plug placed at the casing seat, and a meter box put over the hole with a flow meter enclosed so that all water going into the well may be measured accurately.

Intake wells are then connected up to the water distribution system, which must be buried below frost level to permit distribution during the winter months.

The oil wells are completed in a similar manner as the water intake wells, except that the tubing is not cemented in the hole. Pumping is ordinarily done by band-wheel powers and Oklahoma-type pumping jacks. The oil and such water as is produced during the later life of the flood are run into small receiving tanks where the oil production is gauged and the water siphoned off. The oil is then run into stock tanks on the lease.

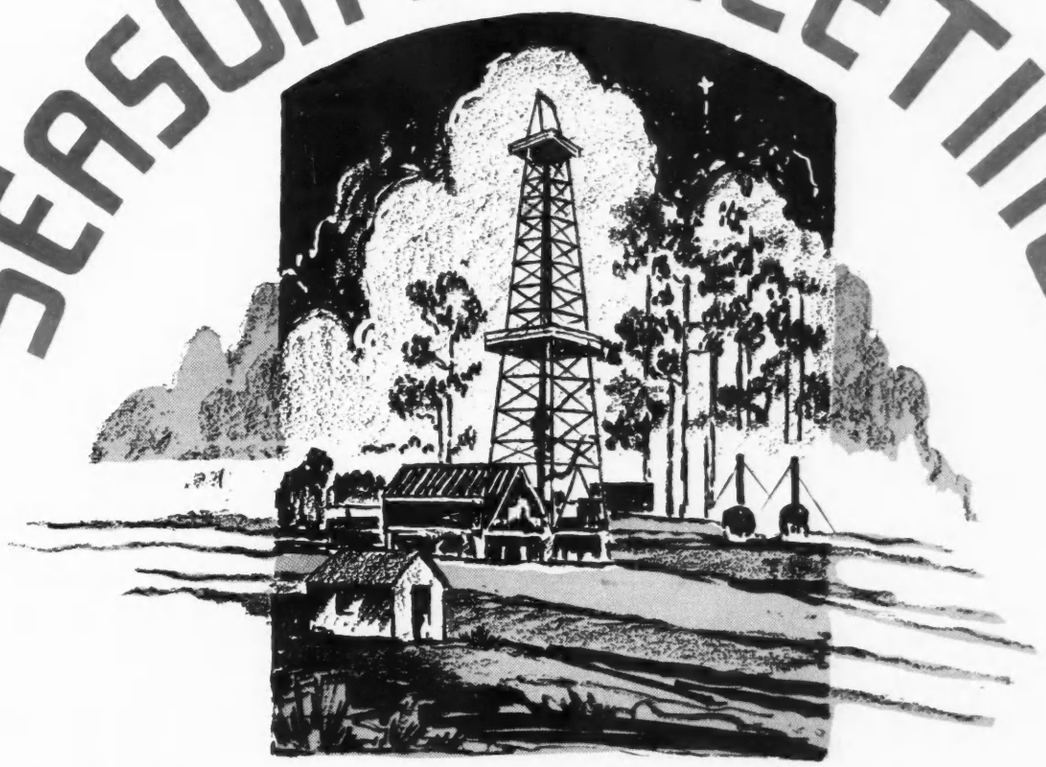
Pumps of the vertical triplex type are generally used for distributing the water to the intake wells, but on some larger properties in the Bradford field centrifugal pumps have been installed. Power for running the pumps and band wheels is ordinarily supplied by single cylinder two- or four-cycle gas engines. Where there is a shortage of gas, multi-cylinder gas engines of the four-cycle type maye be used, resulting in a much lower fuel consumption, and where there is any fuel shortage, Diesel engines or electric motors must be used.

Operation of Water-Flood Properties

After the development work on a property is completed, the water is simultaneously turned into the intake wells, generally with no extra pressure in excess of the weight of the water in the tubing. As the sand becomes more nearly saturated with water, it is usually customary to increase the pressure gradually, since more energy is required to move the larger volume of fluid in the sand. After the water has been going into the sand for a varying period of from four to eight months, depending on the well-spacing and the physical properties of the sand, an appreciable increase in oil production occurs which ordinarily reaches its peak from 16 to 18 months after the water has been first introduced into the sand. In closely-spaced floods, the peak of production is very sharp with a correspondingly rapid decline in oil production and increase in water production after the peak of production has been reached, whereas in widely-spaced floods, the peak is not so prominent and the decline much slower.

Under normal conditions, the operation of water flood properties is comparatively simple, and outside of the usual maintenance of wells

SEASON'S GREETINGS



May good health, joy, and happiness be yours this holiday season . . . and may they continue throughout the new year.

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and equipment, requires a minimum amount of labor. After the depletion of the property, much of the equipment can be salvaged, and it is customary to use this material over and over again on other nearby or adjacent floods.

The only outstanding recent improvement in production technology in the Bradford field is the back-pressuring and flowing of the producing wells, rather than pumping. It is possibly too early as yet to state definitely how the results from back-pressuring and flowing the oil wells will compare with normal flooding operations,but it is indicated that the oil recovery will be approximately the same, and it is certain that the operation of properties by this method will reduce development costs very materially, since pumping equipment is not needed.

Application of back-pressuring and flowing methods to a property merely represents the utilization of the water pressure to flow the wells. After the sand becomes saturated with fluid by the introduction of water, a condition of hydraulic control exists in the sand. That is, the pressure applied at the intake well is transmitted through the entire sand body, being only diminished by the frictional resistance to fluid movement encountered in the sand. The amount of water required to fill completely the pore spaces of the sand can be approximately calculated from the analyses of cores, and when this point has been reached, the pressure at the intake wells is increased sufficiently to raise the fluid level in the producing wells to the point where they will flow. In back-pressuring, the wells may be flowed openly up to the amount of oil desired, or the oil may be produced through small chokes, thereby maintaining constant production while at the same time keeping a back-pressure on the sand at the producing wells.

System of Delayed Drilling

One other production method ..hich has found rather wide application in the Allegany fields, and which has been used to a smaller extent in the Bradford field, is the use of the delayed system of drilling the oil wells in water-flooding operations.

Application of the delayed system of drilling the oil wells came as a logical improvement to the methods previously employed for increasing the recovery of oil. The utilization of this method was originally planned as a means for controlling a definitely known and very troublesome sand condition, but subsequently it has been applied in uniform sand areas with satisfactory results.

All data so far obtained indicates that the delayed drilling of the oil wells will increase the effectiveness of water-flooding operations, providing the water is introduced into the sand uniformly through each intake well and thereby does not concentrate the oil off center in the five-spot square.

The first delayed flood was tried on a property in the Allegany field, where old drilling records showed a very good sand section, but on which water-flooding had yielded very poor returns. A study of cores of the sand from this property showed that the lower part of the sand, comprising some four feet, was highly permeable, and that the upper main section was relatively tight, although well saturated with oil. The cores also showed that the water introduced into the sand had been moving almost exclusively through the lower, highly permeable part, without affecting the upper part. This condition was responsible for rapid water movement into the producing wells with an average oil recovery of only about 1300 barrels per acre.

It was conceived that if the drilling of the oil wells could be delayed, and if a constant water pressure maintained at the intake wells, the water, having no outlet, would begin to flood the tighter parts of the sand after the looser parts had been thoroughly saturated with fluid. The method was tried, and it was found that this very thing happened. The oil was apparently first concentrated near the center of the five-spot square in the lower highly permeable member, and then was concentrated in the same manner in the tighter main body of the sand. Oil recovery was increased

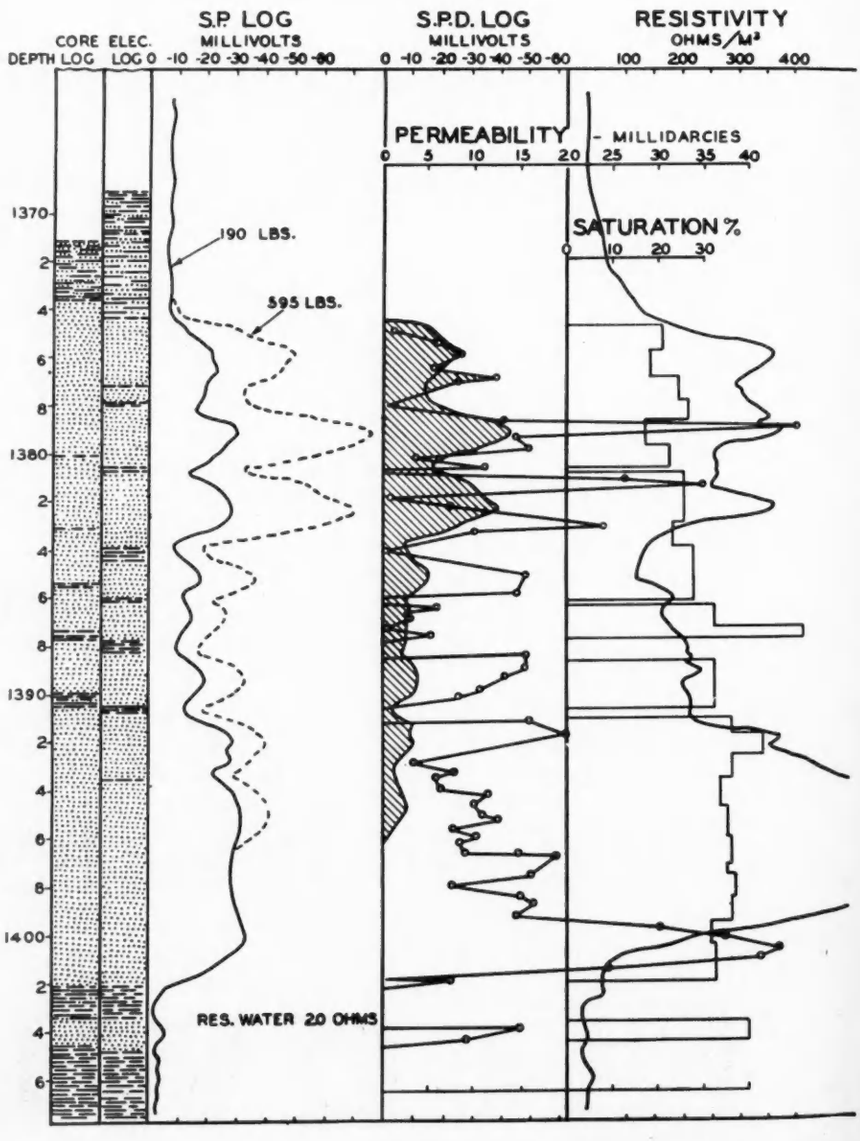
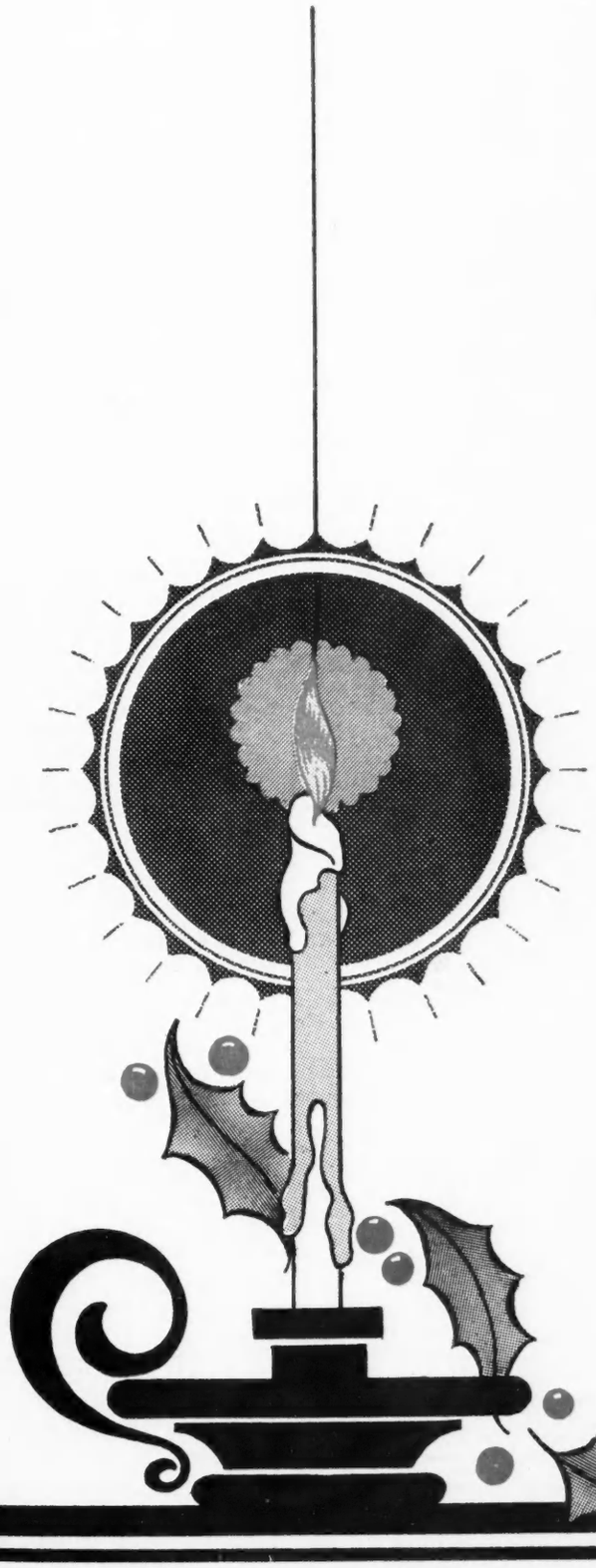


FIGURE 7

Graphical comparison between a core log and electrical log for a well located in the Bolivar field, Allegany County, New York.

Season's Greetings



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to slightly over 4000 barrels per acre, thereby changing what had been a distinct failure to a fairly profitable operation.

Following the success of the first delayed flood, several other delayed floods have been started, some of them being located on properties where far more uniform sand conditions exist than were found on the property where the first experiment was carried out. None of these floods has as yet been depleted, but the production data so far available indicate the oil recovery will be increased approximately 20 percent over that which would have been obtained by conventional methods of operation, and that the water production has been materially reduced.

Production from delayed floods corresponds much more closely to natural production than does the production from conventional waterfloods. Unless the producing wells are flowed by the back-pressuring and flowing method, the largest production will be obtained immediately after the oil well is drilled. The production then declines as oil is removed from the sand, and water eventually comes into the hole, but it has been found that the appearance of water is considerably delayed beyond the time it would normally appear, and usually does not show up until a greater part of the recoverable oil has been obtained, thereby reducing lifting costs.

Application of Electrical Well Logging

In November, 1936, an experimental party of a Houston, Texas, corporation was stationed in the Bradford field to ascertain whether measurements of the physical properties of oil sands, such as porosity, permeability, and saturation, could not be made by electrical logging devices as well as by core analyses, the latter being heretofore the only known method of obtaining this most valuable and necessary information.

The research undertaken is by no means completed, but the information so far obtained has indicated such a practical application to water-flooding that no discussion would be complete without setting forth some of the results which have been obtained.

The surveying corporation has most generously made available to the writer, for the purpose of this paper, much data including a report prepared by its engineer, W. J. Gillingham. The writer summarizes the data that have been furnished, and in part quotes directly from Gillingham's report.

Electrical log records afford the easiest and most accurate means of formation correlation yet obtainable. In the Bradford field, and in fact in most of the Appalachian oil fields, the large number of wells drilled and the general consistency of the formations have made the correlation of beds and formations between wells in any one field a relatively simple matter. It has been found, however, that by combining the resistivity diagrams and the spontaneous electrical phenomenon effect diagrams, the latter being generally called the S. P. effect, it is possible to distinguish very closely between interbedded oil sands and shale beds, thereby giving a quick and accurate measurement of the total sand thickness in any well. Appalachian oil sands usually show a high resistivity and S. P. effect, while shales show minima on both diagrams. This is nicely illustrated in Figure 7, where a log obtained by coring is plotted beside a log from the same well, determined from a careful examination of the resistivity and S. P. effect curves. It can be readily seen how the electrical log picks up the shale breaks, and shows the thickness of every sand bed even more accurately than the core log, owing to the elimination of errors brought about by the loss of core and in core measurement.

From the foregoing it should be quite evident that electrical logging surveys of wells already drilled on unflooded properties or otherwise untested new fields will give most valuable information regarding the actual thickness of pay sand, as well as indicate some of the sand's more important physical characteristics, without going to the cost and time of drilling test wells and taking cores. By making several electrical surveys on old wells not only can the exact thickness of the sand and shale be

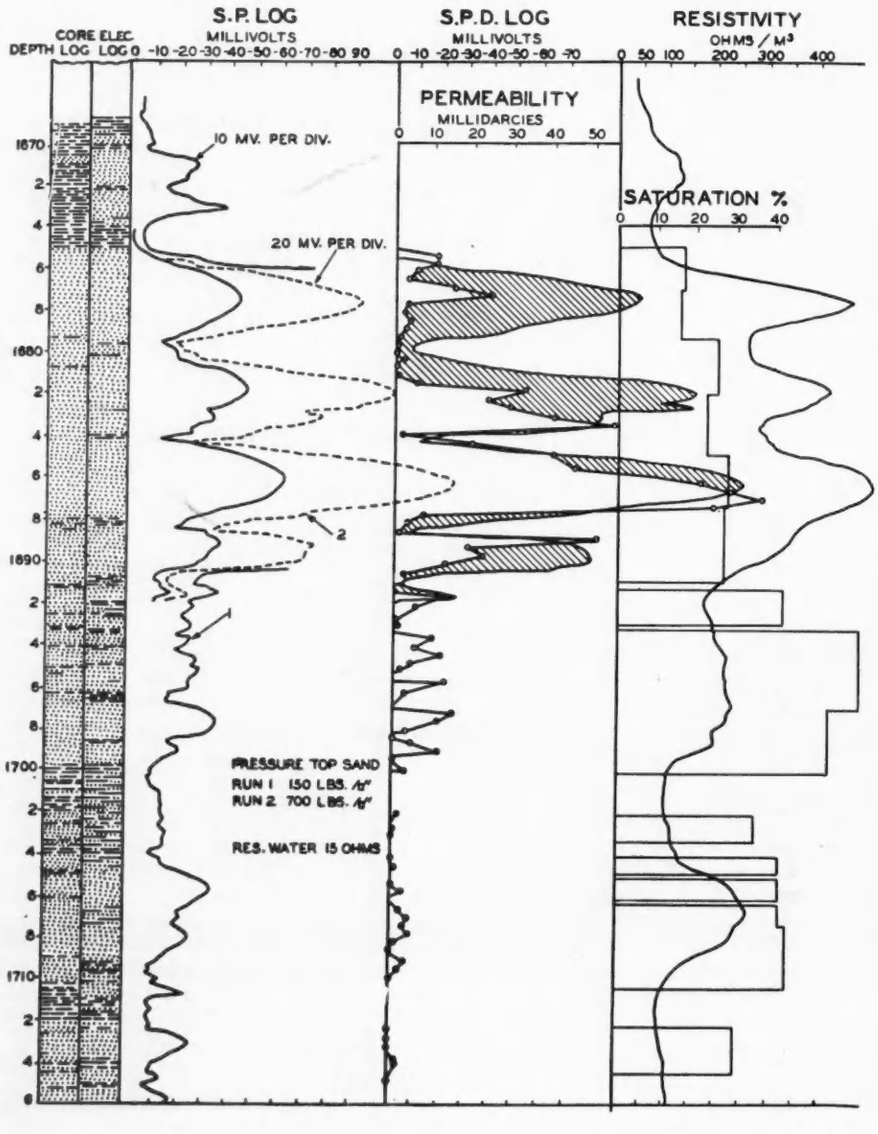

FIGURE 8

Electrical log of a well in the Bradford field, showing how gas pay and oil pay in the sand may be differentiated.

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determined, but also an idea of how sand conditions are varying all over the property or throughout the field can be obtained. By this means it can readily be decided whether or not the property or field is even worth coring, and if so the best locations for core wells can be selected.

The spontaneous electrical phenomenon or S. P. effect, previously referred to, is due to two causes, electrofiltration effect and electrochemical action. When an electrolyte is caused to flow through a permeable medium an electromotive force occurs between the two sides of the medium. This EMF, which is called the electrofiltration effect, is proportional to the pressure, to the electrical resistivity of the filtering fluid, and inversely proportional to its viscosity. If two solutions of different saline content are in contact, an electromotive force is generated by the interchange of ions, and this EMF is called the electrochemical action. Thus if fresh water is introduced into a well and is brought in contact with salt water in the sand an electromotive force is generated. Usually both phenomena have the same sign, negative, and add together. The resulting S. P. effect measured is the sum of the two. Both phenomena are occurring in front of a permeable saline bearing sand when fresh water is being introduced into it, so that a peak of electromotive force is usually recorded on the diagram whenever porous and permeable formations are encountered.

The electrofiltration effect gives a measure of the amount of water entering the sand at the position where the recording device is located, and hence, since the sand body will be under a constant hydrostatic pressure, providing the hole is kept filled with water, it will give some idea of the permeability.

Unfortunately, however, the EMF recorded by the S. P. diagram includes both the electrofiltration effect and the electrochemical action. It is, however, possible to eliminate the effect of the electrochemical action, and thereby give a more accurate determination of the sand permeability, by making two runs of the recording instrument under different hydrostatic pressure. The electrochemical action is the same in each case, and the difference between the two readings therefore will depend solely on the electrofiltration effect. Since measurements are made continuously, this parameter can be measured throughout the sand body. The measurements can be readily made in the field with different water pressures applied to the sand, and thereby the S. P. and the S. P. differential, hereafter referred to as the S. P. D., can be plotted.

In Figure 7 the "electrical permeability," or more accurately the S. P. D., shows a very close agreement with the permeability determinations obtained from core analyses, excepting in the very loose streak in the lower part of the sand. From experimental evidence it has been ascertained that a sand of very low permeability but having a high oil saturation will fail to show any S. P. D. on the electrical diagram, whereas if the oil saturation is low a distinct S. P. D. will be obtained. The reason for this may be readily explained by the fact that a large volume of oil in a highly porous sand will certainly modify to some extent the manner in which the sand will take water. The S. P. D. diagram indicates most conclusively that the water, in the instance referred to, was not moving into the highly oil saturated beds at the rate it would normally travel were the beds free from oil, or only partially saturated. It undoubtedly would require a series of tests after the water had been moving into the sand for some time to definitely determine the S. P. D. throughout the entire thickness of the sand body.

The important feature that is indicated by Figure 7 is that when water is first introduced into an intake well it will commence to move most rapidly through the beds of lowest oil content.

The fact that the electrical log shows the moderately permeable but highly saturated zones as impermeable members might appear to be a serious drawback; actually in some cases it is a distinct advantage. This is particularly true in detecting the presence of gas pays in the sand which must be packed off to permit effective flooding action in the oil saturated parts. Since the gas pay will take so much more water than the oil pay, its presence may be easily recognized on the electrical log on account of the large S. P. D. generated. Figure 8 gives an actual example. The section from 1675 to 1691 shows a very large S. P. D. on account of being a barren gas pay. The moderately permeable section from 1691 to 1700 feet is well saturated and therefore shows no S. P. D. The

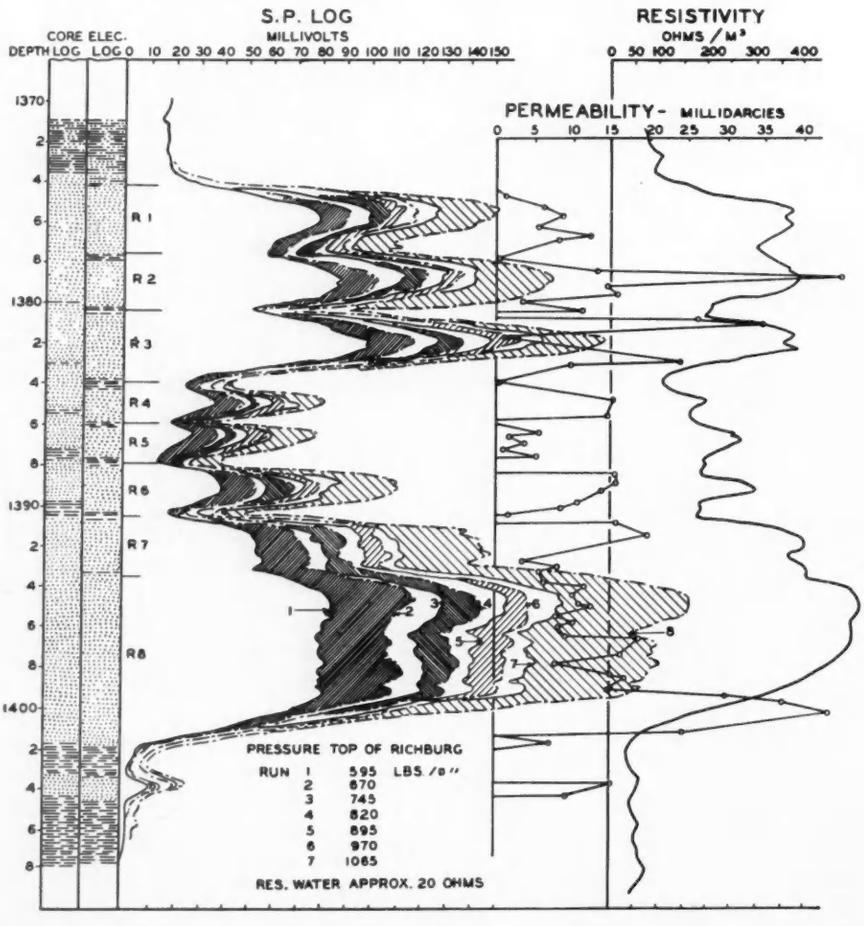

FIGURE 9

Electrical survey showing the effects of different water pressure on the S. P. diagram in a well located in the Bolivar field, Allegany County, New York.

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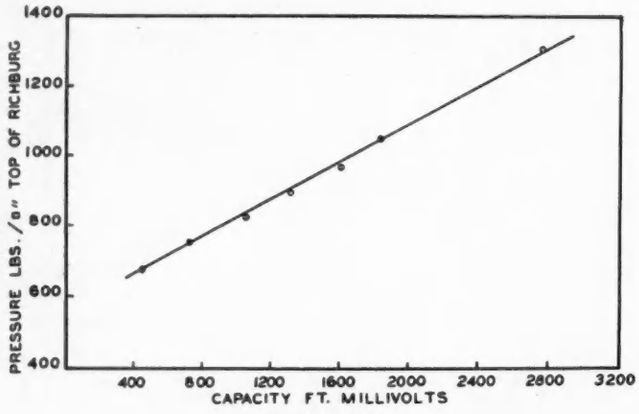


FIGURE 10

Graph showing relationship between pressure at top of the sand, and electrical capacity in foot-millivolts.

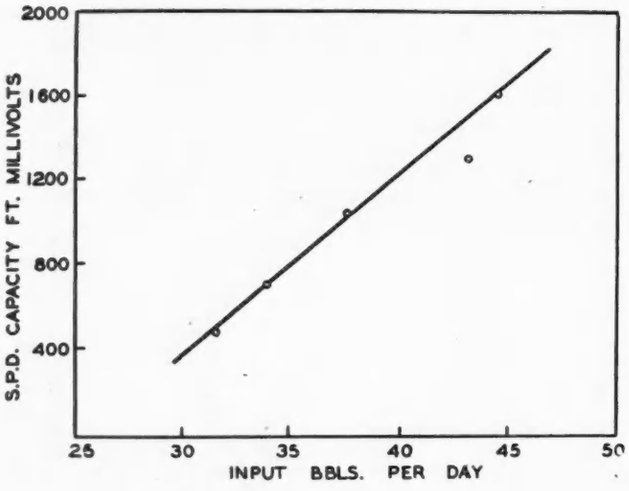
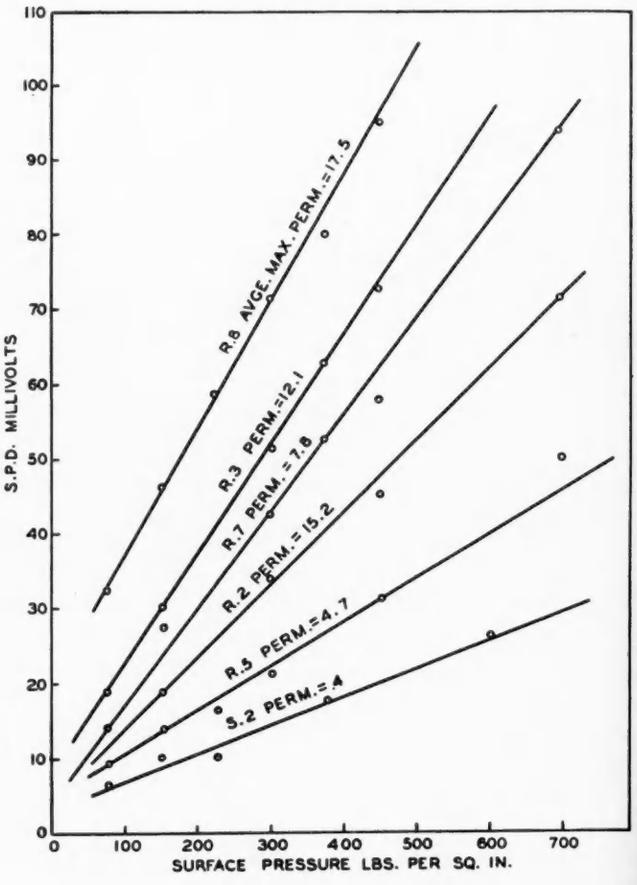


FIGURE 11

Graph showing S. P. D. capacity in foot-millivolts in relation to water input in barrels per day.

FIGURE 12

Graph showing relationship between S.P.D. in millivolts and surface pressure for individual sand beds of varying permeability.



best packer point, around 1691 feet, may therefore be easily chosen. It is interesting to note that the electrical log presented in Figure 8 conforms very closely to the results shown in Figure 7, in that the two sand sections shown in Figure 8, from 1675 to 1679 and from 1694 to 1698, both have approximately the same permeability as indicated from the results of the core analysis, but give an entirely different S. P. D. diagram. On the upper low saturation section a large S. P. D. is obtained, while on the lower, more highly saturated section, no S. P. D. can be observed.

The relationship between S. P. D. capacity and actual water flow can be easily proved from actual observations made in the field. In Figure 9 the results of an electrical survey of a well drilled into the Richburg sand in the Bolivar field, Alleghany County, New York, is shown. In this survey measurements were made at eight different pressures at the top of the sand, ranging from 595 pounds per square inch to 1295 pounds per square inch. The results of this series of tests indicate most conclusively that increasing the pressure causes a steady increase in the S. P. The capacity in foot-millivolts of the electrical diagram in relation to the pressures employed has been computed and plotted as shown in Figure 10. The straight line resulting shows that the S. P. filtration effect is directly proportional to the pressure.

In this same well, illustrated in Figure 9, the actual water intake was measured while the survey was in progress, and in figure 11 the capacity has been plotted against water intake. Here again the relationship is actually linear, showing that the S. P. D. or electrical permeability is directly proportional to the actual water intake. This being the case, there seems to be no question but that electrical logs can give a very accurate picture of fluid movement into sand body.

In this particular well, first shown in Figure 9, the S. P. D.'s of some of the individual sand sections have been plotted against varying pressures, as illustrated in Figure 12. Lines of different slant are obtained according to the different permeability of each individual sand bed, and it will be noted that they do not exactly fall in regular order. Although it might be generally expected that sand beds of higher permeability will take more water than beds of lower permeability, it would appear from the electrical log data that the relationship is not a linear one, i.e., input is not directly proportional to permeability.

No definite correlation can be shown between the resistivity diagrams and oil saturation in electrical surveys of wells in the Bradford and Allegheny fields. The reason for this apparently is because of the fresh water used in flooding. Fresh water is very resistant, and a sand partially or entirely filled with fresh wa-

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ter may show as high a resistivity as a sand saturated with oil.

The fact that by a modification of the regular electrical well surveying procedure an accurate measurement of fluid flow into the sand can be obtained means that much of the data that could formerly be obtained only from core analyses can equally well be obtained by electrical surveys.

For example, it has long been a controversial point as to what is the minimum sand permeability that can be effectively flooded. Usually 1 millidarcy has been accepted as the lowest floodable limit, but in Figure 13 the electrical log conclusively shows that except for the section of sand from 1339 to 1343, which had an average permeability of 0.1 millidarcy, the entire sand body was being flooded, notwithstanding the fact that laboratory analyses showed that 50 percent of the sand had a permeability of less than 1 millidarcy.

Not only have electrical surveys shown that sands of very low permeability may be flooded, but they also may be used to determine the proper pressure that should be applied to the sand to obtain effective flooding action. The electrical log will clearly indicate the best pressure that can be employed to introduce water uniformly through the sand. It also, by showing the tighter parts of the sand, can serve as a guide to the proper shooting procedure.

One feature of water-flooding operations which is always the source of trouble, unless controlled by delayed drilling or by back-pressuring, is rapid water encroachment through the more permeable beds of the sand. Where core analyses are not available an apparatus may be used to determine the horizon in a producing well through which the water is coming. This instrument consists of a photoelectric cell and a light bulb which is lowered into the hole, and between which the fluid in the hole is forced to circulate. Any variation in the translucency of the fluid in the hole is shown by the photoelectric cell.

To use the apparatus the well is first conditioned by filling the hole with an opaque fluid, usually muddy water, and then running the instrument through it down to the level of the producing sand, and thereafter gradually lowering it as readings are taken. As water filters in from any particular bed and dilutes the opaque fluid rendering it translucent the instrument records an anomaly, and therefore defines exactly the point in the sand through which the water is traveling. Measures may then be taken to plug off the offending sand member and thereby reduce lifting costs materially.

Results so far obtained clearly indicate that electrical surveys may be most advantageously employed in water-flooding operations. The problem of accurately measuring the oil saturation of the sand remains to be solved, but the utility of electrical logs for determining other important physical characteristics of the producing sand is already so evident and can be so easily made that electrical surveys will undoubtedly be very widely employed in future operations both in the eastern fields, and in new water-flooding projects in the Mid-Continent region.

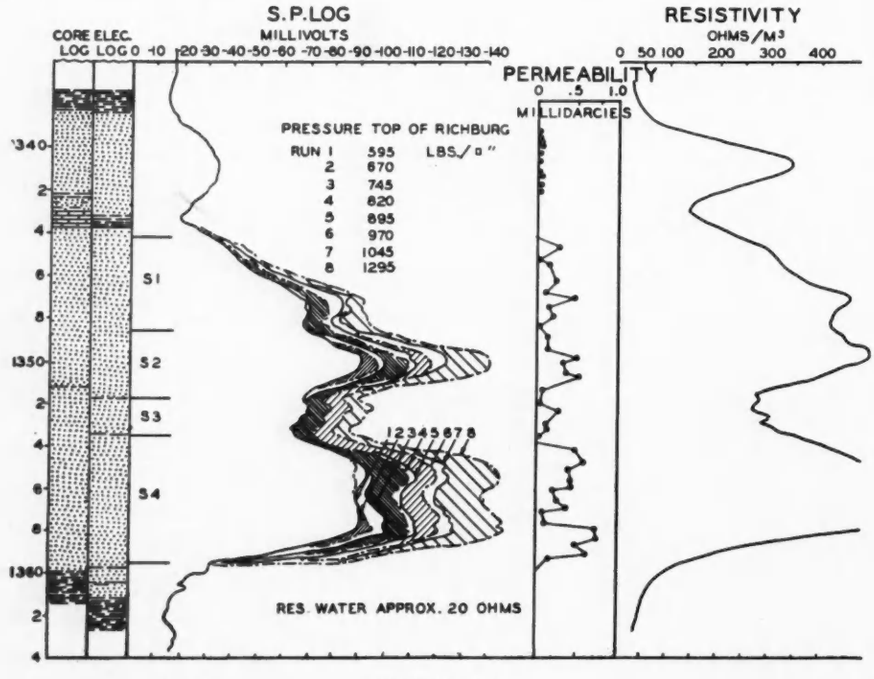

FIGURE 13

Electrical log of a well drilled to the Stray sand in the Bolivar field, Allegany County, New York, showing flooding action in sand beds possessing a permeability of less than one millidarcy.

Conclusion

The estimated natural production of the Bradford field has been slightly over two hundred million barrels of oil. It is conservatively estimated that water-flooding will provide a total additional recovery of somewhat over three hundred million barrels of oil. At the present time, about one hundred million barrels of crude have been produced from the field by flooding operations, leaving an amount practically equal to the entire natural production of the field yet to be recovered.

In other words, the application of water-flooding to the entire field may be expected to recover at least one and one half times as much oil as was yielded by natural production over a period of almost seventy years. On individual properties this increase is sometimes substantially greater, the recovery by water-flooding being as high as twice the amount produced by natural production. Such being the case, it can be stated with little fear of contradiction that water-flooding has proved to be the most important agent of conservation of this nation's oil resources, insofar as its application to the older fields is concerned, that has ever been developed.

Water-flooding operations come more closely to corresponding to manufacturing industry than any other part of the business of producing oil does. It is possible to estimate quite closely the amount of oil that can be recovered, and land and development costs may be accurately determined in advance of any development. The only unpredictable factor is, of course, the price that can be obtained for the product, and it should be apparent to all that this is an uncertainty that is inherent in almost every other line of business.

[Concluded]

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HODELL'S paper, Parts I and II of which were published in recent issues of The OIL WEEKLY, was presented in full before the American Petroleum Institute in Chicago November 12. The statements and opinions expressed herein are those of the author and should not be construed as official actions or opinions of the institute or of The OIL WEEKLY.

Circumferential Field Welding of Casing

By L. R. HODELL, Carter Oil Company, Tulsa

PART III

PARTS I and II of Hodell's paper went into a discussion of the welding problem itself, the floor problem, that is, getting the necessary equipment for running welded casing and training drilling crews in the operation. They then told of a series of tests made in considering the joint problem. Part I was accompanied by five illustrations and four tables. Part II carried two tables and five illustrations. The second installment closed with the author just getting into a discussion on the rate and the cost of running welded casing, listing as one important cost the time employed in getting crews to and from the job. Part III follows:

IN ADDITION to this cause of higher costs and rates of running, we have a well known source of loss in that it is never possible to set an exact time at which a casing job will commence. All producing operators are familiar with the last minute delays which frequently put off the beginning of a casing job. For this reason, there are many instances in which welders are called out possibly as much as two or three hours before the drilling crew is ready for them to start. There are also the delays caused by the necessity for working over equipment during the running of pipe, and for the filling of the pipe with fluid as it is lowered into the hole. All these factors, which will be thoroughly appreciated by production men, make extremely difficult the accurate listing of time necessary for accomplishing the running of any given size and weight of pipe.

It is felt, however, that some effort should be made, and that the times and costs so given can be made more reliable if we eliminate as far as possible these greatest causes of loss of time.

We have, for that reason, set up on the basis of our actual experience the time necessary to run pipes of varying diameters and thicknesses, and it is to be understood that this is intended to be the time from which the first joint goes into the hole until the pipe is landed. Thus, we eliminate from both the time and cost figures the delays and costs brought on by the number of miles the welding crew must travel to arrive at the job and the length of time that is necessary for them to wait after arriving at the job to start running pipe.

After we have given these figures, some attempt will be made to present true cost figures as shown on our

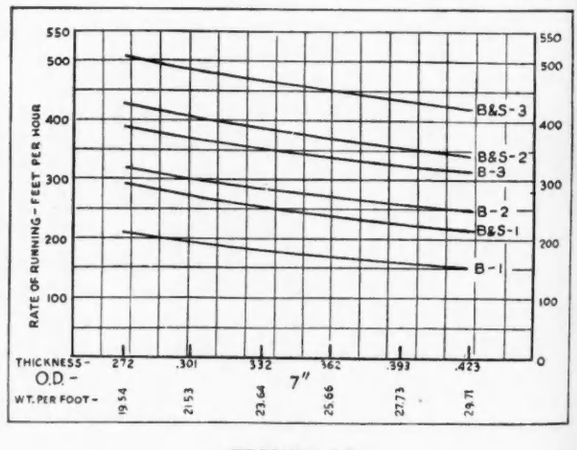

FIGURE 11
Rate of Running 7-Inch Outside-Diameter Welded Casing

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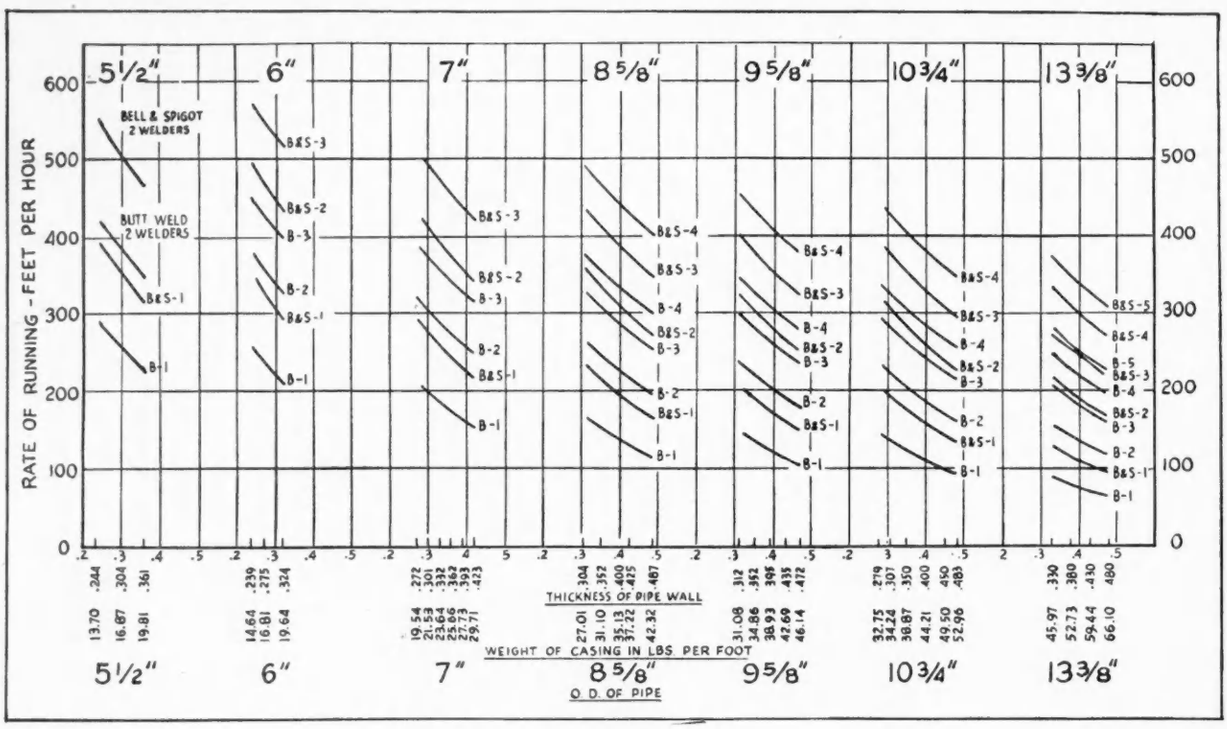


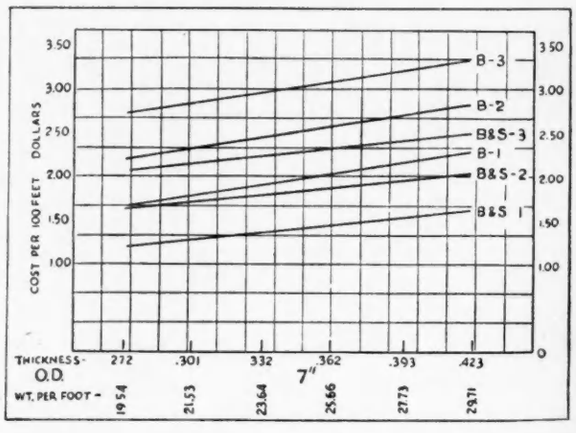
FIGURE 12
Summary: Rate of Running Welded Casing

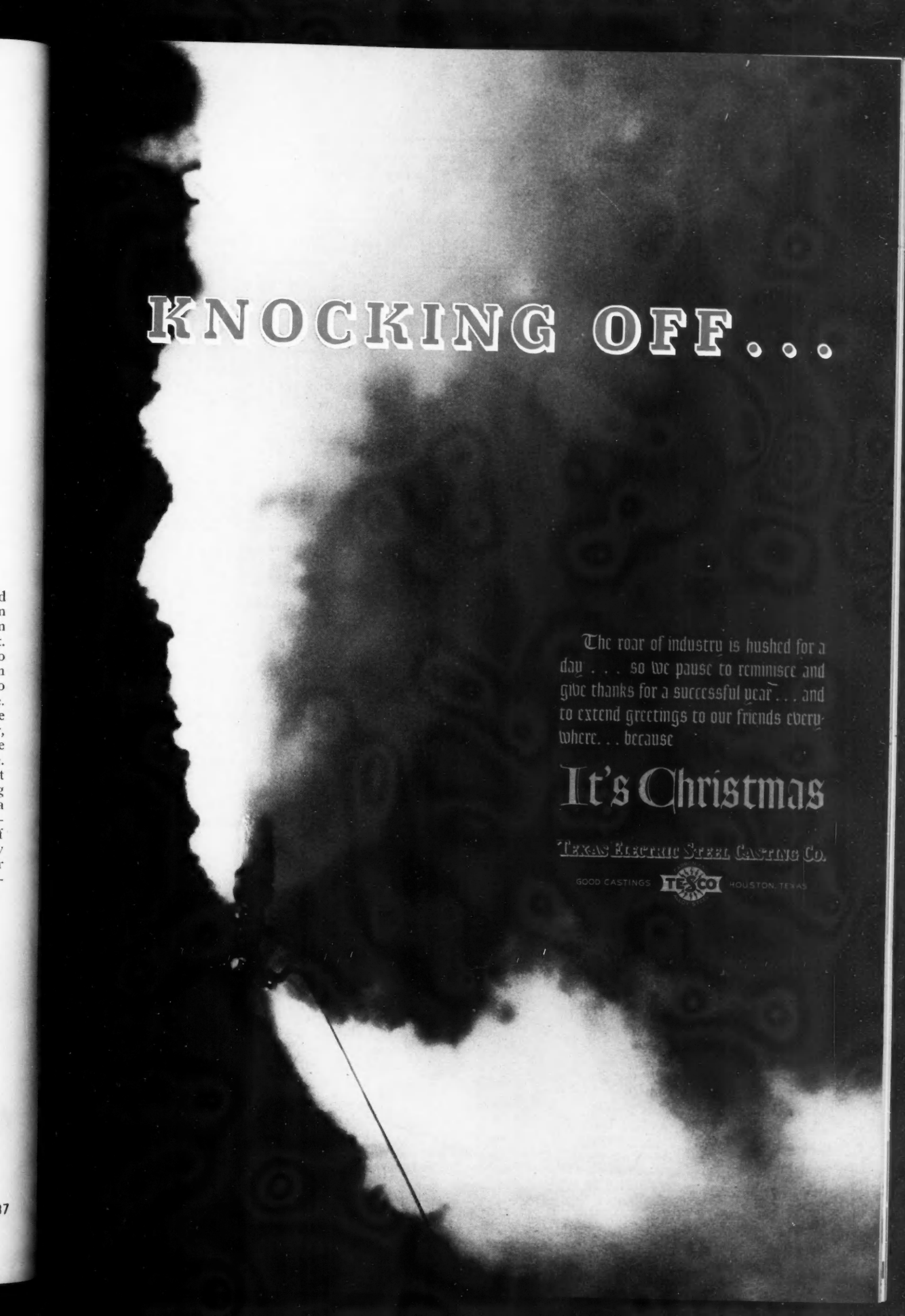
FIGURE 18
Five welders welding simultaneously on a joint of 13⅜-inch casing. Time for first bead, one minute; time for cleaning first bead, one minute; time for second bead, one minute. Over-all time for welding and handling the pipe, six minutes per joint.

books, which include all costs of whatever nature; and some effort will be made to arrive at a ratio between the true cost figures and the cost figures as based on the actual job of welding and the time required for it.

In giving first the figures for the time required to run casing, it should be understood that these are in no way record times; that no effort has been made to set out here the best times which we have ever made. We believe that these are relatively slow times, because we are constantly beating them ourselves. However, the yare probably a fair average for ourselves, as there are occasions when we do not make as good time. They include everything from the time the first joint goes into the hole until the last joint is landed, including the necessary time for filling the pipe with fluid, and a certain amount of time for normal delays which inevitably occur on nearly every job. These rates of running pipe, we believe, could be quickly equalled by anyone newly starting into the practice of welding their own casing, and in the course of time could unquestion-

FIGURE 13
Cost of Welding Casing

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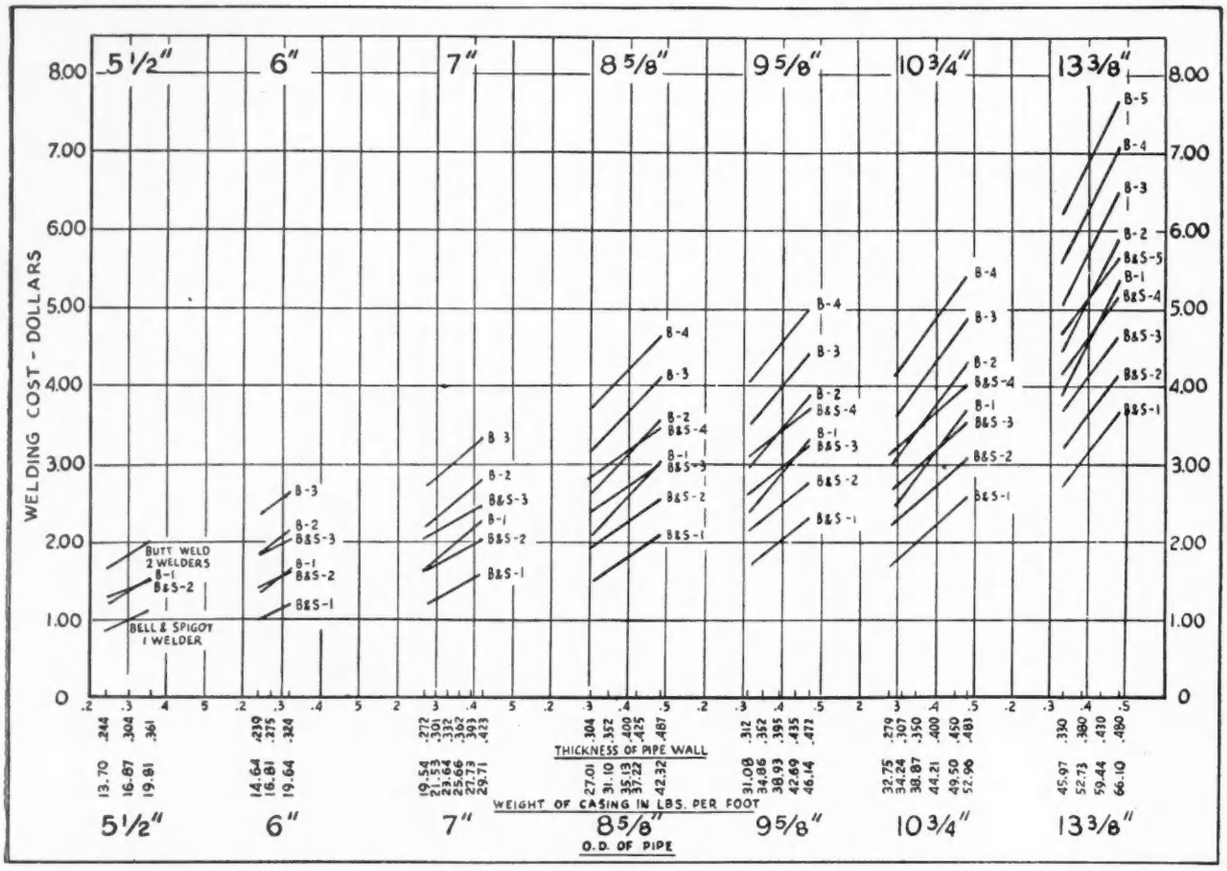


FIGURE 14
Welding Cost Per 100 Feet of Casing

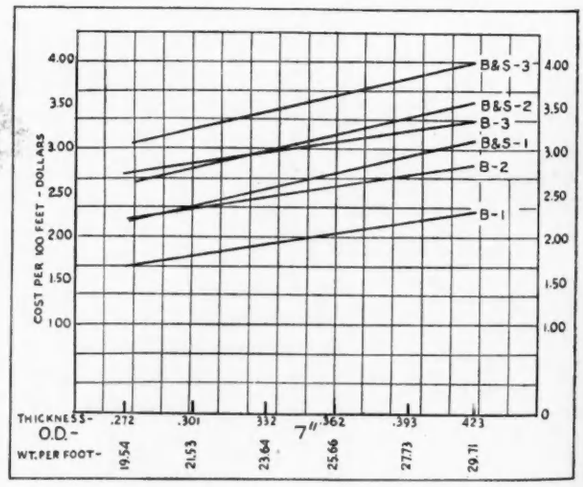
FIGURE 20
13⅜-Inch Slip-Joint Completed

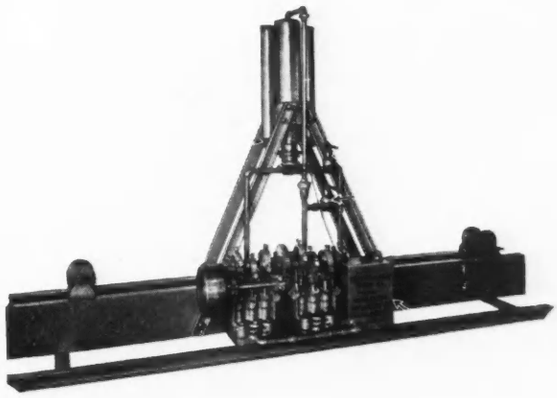
ably be exceeded. These rates are sufficient to allow time to make a thoroughly high-class weld.

With this explanation, atention is called to Figure 11, which represents the rate at which 7-inch casing can be welded into the hole, using from one to three welders and using the bell-and-spigot and the butt joints.

It will be noted that in the running of 20-pound casing, with three welders, a rate of running of slightly over 500 feet per hour is attained. This rate decreases as the weight of the pipe increases, and in running 7-inch 30-pound with three welders and bell-and-spigot joint, the rate of running is approximately 425 feet per hour. In

FIGURE 15
Cost of Welded 7-Inch Casing Joint





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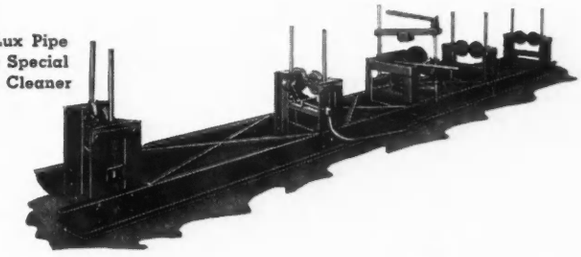

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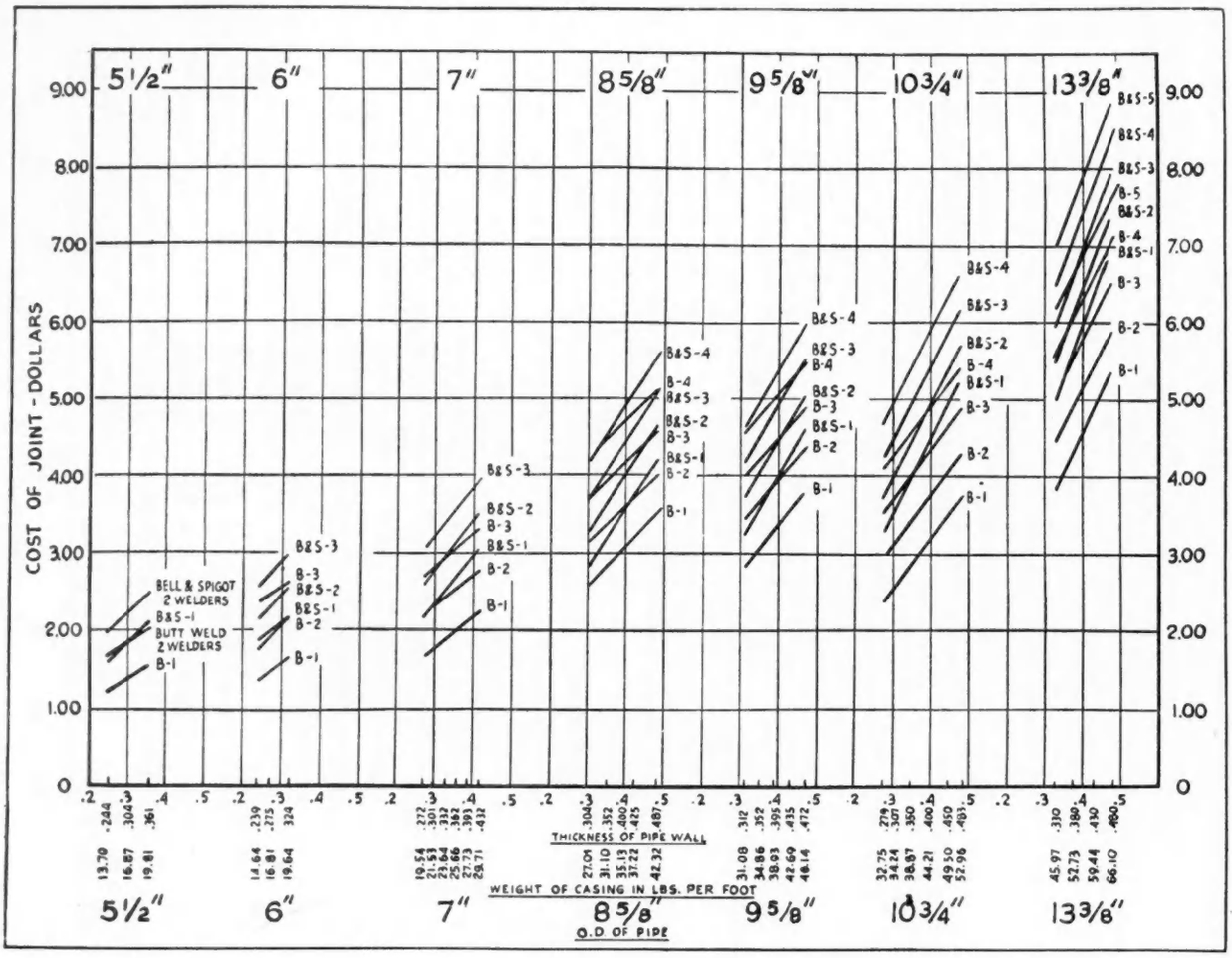


FIGURE 16
Cost of Welded Joints Per 100 Feet of Casing

the case of the butt joint with three welders, the rate is noticeably slower.

The rates comparing to those already given are for the 20-pound, 365-foot per hour, and for the 30-pound 320-foot per hour.

Figure 11 also shows the rates for the running of 7-inch pipe, using two welders and only one welder. It should be pointed out at this time that these are average rates for casing strings of varying lengths. We find that in running very short strings the time is always abnormally long, due to the fact that neither the welders nor the drilling crew have sufficient opportunity to get into the swing of it. In long casing strings the routine settles down and functions smoothly after about the first hour.

Figure 12 gives the same information for all sizes of pipe from 5½-inch to 13⅜-inch. It will be noticed, of course, that, while the rate of running decreases as the diameter increases, this rate nevertheless may be maintained in practice at a fairly high level by reason of the fact that the larger the casing, the greater the number of welders that may be employed in the running. Thus, it is possible in the running of 13⅜-inch casing to run pipe at the rate of 375 feet per hour in the 48-pound thickness, by the use of five welders.

Examination of these curves brings out that which has already been noticed in Figure 11: that the running of bell-and-spigot pipe is noticeably faster than the running of the butt-end pipe. A rough over-all figure probably would be that in any given length of time 25 percent more bell-and-spigot pipe can be run than butt-joint pipe.

As these figures are, of course, not intended in any way to be specific, but only general averages, it is probably permissible to give certain other rough figures which may be worth keeping in mind in the study of the problem of welding casing. Very roughly, we find that one half of the time running casing is consumed in handling the casing, and one half of the time in welding it. (This is not accurate, but only intended as an approximation. It will be seen from the values on these curves that such a relationship could not hold throughout all the sizes and weights; however, it is a fair average.)

To Be Concluded in an Early Issue of THE OIL WEEKLY

MEN IN THE INDUSTRY'S NEWS

Lucas medal awarded to Colonel Henry Doherty

Col. Henry L. Doherty, president of Cities Service Company, will be formally presented the Anthony F. Lucas medal "for distinguished achievement in improving the technique and practice of finding and producing petroleum" at the annual dinner of the American Institute of Mining and Metallurgical Engineers on February 16 in New York.

This signal honor recognizes Colonel Doherty's activities as scientist and engineer in the petroleum field to which he has made valuable contributions. He is credited with the discovery in 1925 that natural gas dissolved in oil in a virgin well is a vital, motivating force that is essential to the economical and efficient recovery of petroleum. The discovery meant much—calculated in millions of dollars—to the petroleum industry.

Meant Increased Recovery

Since the Doherty discovery, producers have been able to capture at lower cost a greater amount of oil from wells. Hitherto, the highest efficiency of recovery of oil was estimated at 25 percent because producers, in tapping a virgin well, let the gas pressure escape and lost its use in the mining process.

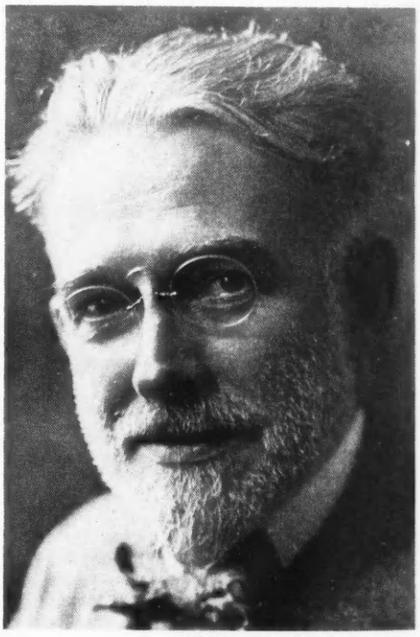
Colonel Doherty, besides being an important figure in the petroleum field, is nationally known as originator of the President's Birthday Ball movement to raise a nationwide fund for the war on infantile paralysis.

The Lucas medal was conferred on Colonel Doherty by recommendation of 15 leaders of the petroleum industry on a committee headed by John R. Suman, vice president of Humble Oil & Refining Company, and was announced recently by the engineering organization. The only other recipient of the medal is J. Edgar Pew, vice president of Sun Oil Company. The medal is awarded annually by the engineers' institute in memory of Capt. Anthony F. Lucas, famed Texas oil pioneer, who discovered Spindletop in 1901. Capt. Lucas died in 1921, and anonymous donors made initial contributions to the medal fund which now totals more than $8,000.

Pew was presented the medal in 1936 in recognition of achievements in the petroleum industry, and principally "for his initiation and vigorous promotion of the program of standardization of oil equipment."

Saw Value of Unit Plan

In addition to his important discovery of the relation of gas pressure to the production of oil, Colonel Doherty is credited universally by engineers with being the first to recognize the advantages of developing oil pools through the "unit system." It was one of the first steps toward conservation of the nation's vast oil resources, a movement which prevents excessive drilling and waste of petroleum. Mexico and Colombia, S. A., have enacted the plan into law, and the United States requires unit operation of oil pools on Federal lands. The system, as espoused by Colonel Doherty, is endorsed by the Federal Oil Conservation Board, the National Petroleum Institute, the American Institute of Mining and Metallurgical Engineers, and by various other scientific, engineering and petroleum organizations.



—Underwood & Underwood.
HENRY L. DOHERTY

Colonel Doherty's work also has been recognized by several universities, among whom are Temple, which conferred on him an honorary degree of Doctor of Laws, and Lehigh, which awarded him the Doctor of Engineering.

JOHN H. KANE, recently resigned executive vice president of Phillips Petroleum Company, Bartlesville, and Mrs. Kane, will leave soon after the first of the year for an ocean voyage to South America. The trip will be concluded sometime in April, 1938.

F. U. NEWLIN, head of the land department for western Oklahoma districts for Tide Water Associated Oil Company, Tulsa, recently moved from Ada, Oklahoma, to Oklahoma City, where he opened an office for the company at 1412 Ramsey Tower.

R. M. CHAN, comptroller of Magnolia Petroleum Company, Dallas, Texas, recently addressed the Houston Chapter of the National Association of Cost Accountants at an evening dinner at the Houston Club. His subject was "Oil Accounting with Particular Reference to Handling of Crude Oil and Actual Piping and Accounting for Royalty."

PROFESSOR FREDERICK B. PLUMMER of the University of Texas, Austin, Texas, was the principal speaker at the Houston Geological Society's regular weekly meeting in the club room of the Houston Public Library, December 16. His subject was "The Lower Carboniferous Rocks of the Llano Uplift."

MARION F. BRIDGES, Tide Water Associated Oil Company, was elected president of the Purchasing Agents Association of Tulsa at the annual election, held December 14 Bridges succeeds C. M. Taylor, Indian Territory Illuminating Oil Company, at Bartlesville. Taylor automatically becomes national director for the Tulsa unit. Other officers elected include Henry P. Hellinghausen, Oklahoma Pipe Line Company, first vice president; Theodore C. Heller, Sun Oil Company, second vice president, and C. D. Taylor, Barnsdall Oil Company, secretary-treasurer. H. M. Cosgrove was renamed executive secretary with E. R. Welch as assistant secretary.

JOHN CADMAN, chairman of the board of Anglo-Iranian Oil Company, Limited, London, England, has been appointed secretary of state for air in England to act as chairman of the committee of inquiry which will investigate charges of inefficiency made against British civil aviation during recent parliamentary debates. This is not the first time his lordship has been requested by the government to help inquire into matters of public importance.

W. T. DINKINS, vice president of Richfield Oil Corporation, was named a director at a recent board meeting in Los Angeles. Cleve B. Bonner, formerly with Sinclair Refining Company, was named secretary and Leonard Switzer was named assistant secretary. Switzer formerly was with Consolidated Oil Corporation in New York. Harry F. Sinclair came to Los Angeles for the meeting.

MAURICE E. MIESSE, with Phillips Petroleum Company at Shawnee, Oklahoma, was recently elected president of the Oklahoma chapter of National Oil Scouts Association at the monthly meeting in Oklahoma City. Other officers elected include: Homer Lynn, with Magnolia Petroleum Company, Oklahoma City, vice president; and Marvin Pitts, with Anderson-Prichard, Oklahoma City, secretary-treasurer.

WILLIAM HENRY COURTIER, who has been in charge of seismic work in South Texas for Phillips Petroleum Company, has been promoted to the position of assistant to the chief geophysicist, and has been transferred to Bartlesville.

MARK C. SYKES, with Skelly Oil Company at Tulsa, has been transferred to Houston as district clerk.

C. V. MILLIKAN, chief engineer for Amerada Petroleum Corporation at Tulsa has returned to the city after a visit in Houston.

FRANK MORGAN, vice president of Richfield Oil Company of California, was recently elected chairman of the Wildcat Committee of the California Oil and Gas Association for the year 1938. Other officers elected include: J. R. Pemberton, oil umpire of California, vice-chairman; Neil C. Needham, manager of land department, General Petroleum Corporation of

California, treasurer; and D. S. Kilgour, assistant manager of California Oil and Gas Association, secretary.

SIR WILLIAM BRAGG, O.M., K.B.E., LL.D., D.Sc., F.R.S., director of the Davy-Faraday Research Laboratory of the Royal Institution, and Sir Henry T. Tizard, K.C.B., M.A., F.R.S., rector of the Imperial College of Science and Technology, had conferred upon them recently honorary memberships in the Institution of Petroleum Technologists, London, England.

B. R. HAIGH, geologist for the University of Texas lands, spoke before a technical meeting of the Oklahoma City Geological Society, December 13, on "Notes on the Geological and Oil Development of the West Texas Permian Basin."

ERIC J. THOMPSON has returned to Kenton, Harrow, England, after three years on Bahrein Island with Bahrein Petroleum Company, Limited, spending a six-month holiday on the way back visiting oil fields of Italy and Germany. Thompson was superintendent for Atlantic Refining Company of Africa nine years ago, being located in Durban, South Africa.

W. P. WHITE, who for some time has been connected with the scouting department of Sinclair Prairie Oil Company at Corpus Christi, has become associated with Hantho-Nelson, Inc., San Antonio.

L. D. SMITH, JR., with W. B. Pape and Marguerite Pape, have formed the Petroleum Trading Company, Inc., of San Antonio. The concern is to engage in crude oil purchasing and pipe line business in South Texas.

JAMES L. BROWN, with Magnolia Petroleum Company, has been transferred from the St. Louis gasoline plant to Olden, Texas, and was appointed district superintendent for West Texas.

J. M. LOCKARD is in charge of seismic work in South Texas for Phillips Petroleum Company, having succeeded William Henry Courtier.

PHILLIP S. (PETE) SCHOENECK, chairman of the entertainment committee, has announced the annual dance of the South Texas Geological Society to be held in San Antonio, December 31. Don Francisco and his Pan-American orchestra will furnish the music. Instead of the usual dinner dance, refreshments will be served in form of a breakfast from midnight until 4 a.m. Members of the entertainment committee with Schoeneck are Leavitt Corning, Jr., Charles Daubert, W. W. Hammond, and Dale G. Benson. Assisting with the sale of tickets are Ira Brinkerhoff, Adolph Dovre, Jimmie Hancock, W. W. McDonald, William H. Spice and I. K. Howeth.

W. H. BERG

This is a recent photograph of W. H. Berg, who was elected president of Standard Oil Company of California 10 days ago (The OIL WEEKLY, December 13, 1937, page 51). He succeeded Kenneth Kingsbury, deceased.

GULF COAST SCOUTS ELECTED OFFICERS

Members of Gulf Coast Chapter of the National Oil Scouts Association of America, Inc., assembled December 10 at Houston, and elected officers for the ensuing year. Jimmie Chisholm, Pure Oil Company, Houston, was elected president; Billy Mathews, Arkansas Fuel Company, Houston, vice president, and Ed Dilley, Atlantic Refining Company, Houston, was elected secretary and treasurer. The picture shows the scouts attending the meeting.

JOHN S. FREEMAN, assistant to Hugh M. Stalcup, vice president in charge of production for Skelly Oil Company, Tulsa, has left Tulsa for the Dominican Republic. There, he will assist in starting the initial test to be drilled by the company on a 500,000-acre concession. He will return to Tulsa as soon as drilling operations are under way.

BERNARD BARBER, formerly in the exploitation department of Shell Petroleum Corporation, Tulsa, has been transferred to the Houston office where he will be employed in the evaluation department.

HERMAN J. STRICKEN, former resident of Denver, Colorado, has been engaged as an examiner for the Federal Tender Board for duty in the East Texas field, with headquarters at Kilgore, Texas.

HARRY M. NIELSEN, West Texas district geologist for Plymouth Oil Company, has transferred headquarters from Texon to Midland. He recently succeeded Tom S. Cox, who resigned to engage in consulting work at San Angelo, and will be assisted by Langdon Tennis and H. Corman, both geologists.

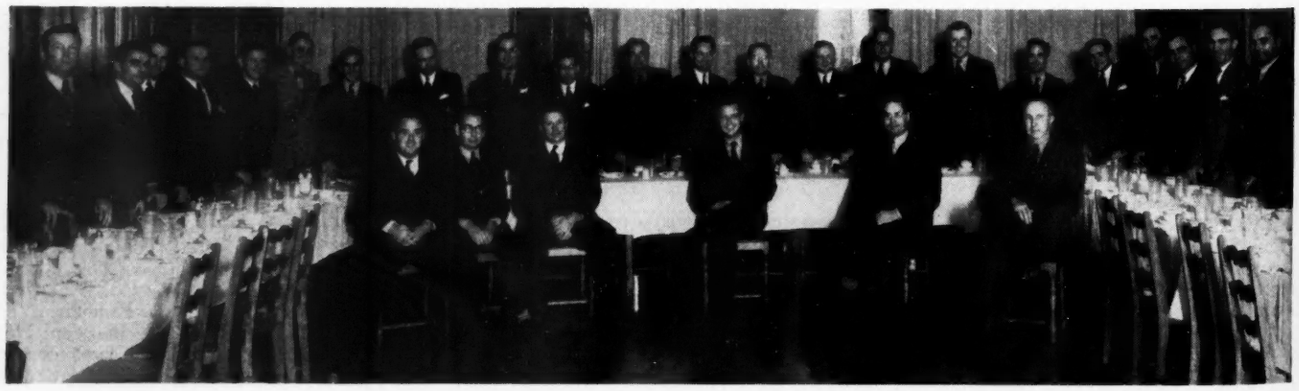
W. T. DENTON, Gulf Coast district engineer for Gas Lift Corporation, has been transferred to Kilgore, Texas, where he will have charge of the company's shop and also serve as district engineer for the East Texas field.

R. M. BEATTY, of Corpus Christi, has become a member of the geological department of Trinity Oil Company of that city. He formerly was district geologist for Tide water Associated Oil Company in that district. He is to be replaced by Jim Ballard, now in Illinois.

A. M. HAGEN, Corpus Christi operator and geologist, has recovered from an illness and is back to his office.

EARL E. IVES, superintendent Oklahoma Division, Oil Production, Cities Service Oil Company, presented his paper, "A Supervisors Responsibility for the Prevention of Industrial Accidents," at a recent meeting of Mid-Continent Petroleum Safety Council at Oklahoma A. & M. College, Stillwater. First plans of the organization on safety were for a paper and presentation by J. E. Howell.

ALBERT WRIGHT, for more than 11 years with the Venezuela subsidiary of Gulf Oil Corporation, has been appointed general superintendent of Amiranian Oil Company. His office in New York will be at 39 Broadway. Amiranian is operating on a concession in Iran.



M. E. FRAZIER, of San Antonio, has been appointed Texas agent, and office has been opened here for the Finley Company, a Nevada corporation. The company recently acquired the properties of Koenig Oil Company on the Tiller land in the Luling field, Caldwell County. The home office is in Gerlach, Nevada.

MAY G. HENDERSON, B. M. Henderson and J. B. Henderson, Jr., have formed Scambia Production Company, a new Corpus Christi oil company.

FRED PERRENOT, San Antonio drilling contractor, is in a sanatorium suffering from concussion of the brain, following an accident while drilling in Caldwell County.

A. T. JERGINS, independent operator of Long Beach, California, was scheduled to sail in December for China and look over possible oil bearing structures there and in other eastern localities. Jergins planned to take several geologists and engineers with him.

THEODORE P. BIBEE, drilling superintendent of Mexican Gulf Oil Company at Tampico, Mexico, spent a few days in Houston recently on business.

W. E. GILBERT, Shell Oil Company, Los Angeles, has been appointed chairman of the 1938 Program Committee of the Central Committee on Drilling and Production Practice, a unit sponsored by the American Petroleum Institute's Division of Production.

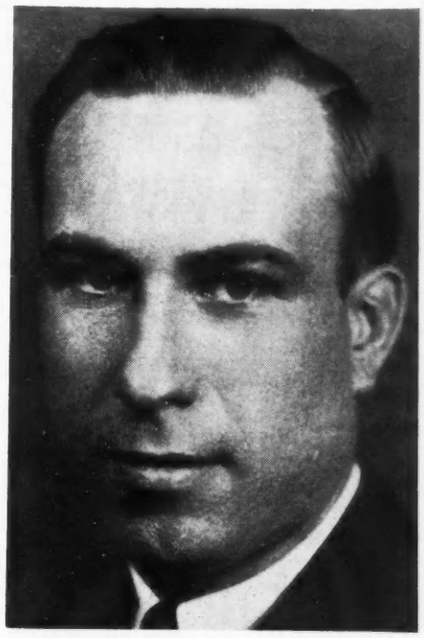
Other members of the committee are: Secretary, Carl A. Young, American Petroleum Institute, Dallas; J. C. Gilbert, Barnsdall Oil Company, Los Angeles; M. L. Haider, The Carter Oil Company, Tulsa; E. F. Kindsvater, Phillips Petroleum Company, Bartlesville; H. H. Power, University of Texas, Austin, and C. E. Reistle, Jr., Humble Oil & Refining Company, Houston.

BERT R. EMRICK, Houston, recently organized the firm of Bert R. Emrick, Incorporated, after completing a special pressure drilling job for Stanolind Oil & Gas Company. The new firm was established for the purpose of deepening and servicing producing wells. The service will be available to the entire Gulf Coast, and will handle wells of 8000- and 9000-foot depths. Headquarters of the new corporation are located at 1018 Travis Street, Houston.

DALTON W. LAIN, formerly assistant oil editor of the Tulsa Tribune, has resigned to accept a position with Reda Pump Company at Bartlesville, Oklahoma, in the public relations department. Lain was an employee of Shell Petroleum Corporation before joining the Tribune staff.

ALAN E. CHARLTON, London, director of Trinidad Leaseholds, Ltd., has been elected deputy chairman of the parliamentary science committee of England.

RICHARD H. HILL, special assistant to the United States Attorney General engaged in prosecuting violators of the Connally hot oil measure, has been instructed to close office maintained at Tyler, Texas, and report to Washington headquarters for other duties. Removal of Hill, who was successful in convicting a number of East Texas operators and employees for hot oil activities, will result in future cases being handled by United States Attorney Steve M. King of Beaumont.



C. N. ROBINSON

Vice president of Public Service Company of Oklahoma, Tulsa, was elected president of the Petroleum Electric Power Club at its ninth annual conference in Shreveport, December 9 and 10. He was vice president previously. Robinson has been with the Oklahoma utility since 1934 and has charge of the department of new business.

FRANK R. MacINTOSH, of Petrolia, Ont., Canada, was re-elected chairman of the board of MacIntosh Oil & Gas Company, Ltd., when shareholders held their annual meeting at Petrolia last week. Authorization was given officials of the company to purchase additional oil field property and to continue a shallow-well drilling program.

A. H. CULVER, chief of the division of lands and leases for The Texas Company at Houston, who will retire from active service at the end of this year, was honored December 9 with a dinner given by the producing department of the company. He has served the company 22 years. At the dinner, Culver was presented a watch by R. Ogarrio, vice president of the company, on behalf of Culver's fellow employes in the producing department.

DIED:

E. E. SWOPE, 52, vice president of Magnolia Pipe Line Company and vice president of Magnolia Petroleum Company in charge of all refineries, died suddenly of heart attack at his summer home in Lake Arthur, Louisiana, December 12.

Swope started out with the company 20 years ago and gradually advanced to the position he held at the time of his death. He was a member of the board of directors of both Magnolia Petroleum Company and Magnolia Pipe Line Company, Dallas. He also was a director of the Oil-World Exposition, Houston, and a member of the American Petroleum Institute.

He is survived by his wife and three sons.

ROBERT McKELVY, 62, vice president and director of Tide Water Oil Company, New York City, died December 9 in New York. McKelvy entered the oil business in 1908 under his father Davis McKelvy, one of the founders of Tide Water Oil Company.

CARL HICKMAN and his wife were fatally wounded by a single bullet discharged from a .38-caliber pistol on December 12. Hickman for several years had been Gulf Coast manager for D. T. Ross Engineering Corporation, with headquarters in Houston. While only a young man, being 28, he was well known in his territory. For several years he served as secretary-treasurer of the Gulf Coast Chapter of the American Petroleum Institute, Division of Production, and had just been reappointed to that office. A year ago he was also elected secretary of the Southwestern District of the American Petroleum Institute, Division of Production, and was still serving in that capacity.

DR. WILLIAM E. HEWIT, 70, pioneer South Texas oil operator, died at his home in Corpus Christi, December 12, after a brief illness, and was buried at that city. Dr. Hewit practiced dentistry in David City, Nebraska, many years, retiring in 1919 to move to Refugio. He became associated with Judge J. R. Dougherty in Refugio and the two were the discoverers of the Pettus field and among the earliest to operate in the Greta and Tomoconnor areas. Dr. Hewit moved to Corpus Christi four years ago.

LEO E. MILLER, 38, sales manager for Tydal Refining Company, was fatally stricken December 14 at his Gainesville, Texas, residence. He is survived by his wife and a small son.

HORACE H. ATKINS, 64, scout and land man for the old Prairie Oil & Gas Company in Eastern Oklahoma for many years, died at his home in Muskogee, Oklahoma, December 10.

R. W. WYNN, 66, auditor for the Stanolind Pipe Line Company for the past 19 years, died of a heart attack at his office in Tulsa December 8. Surviving are his widow, two sons and three daughters.

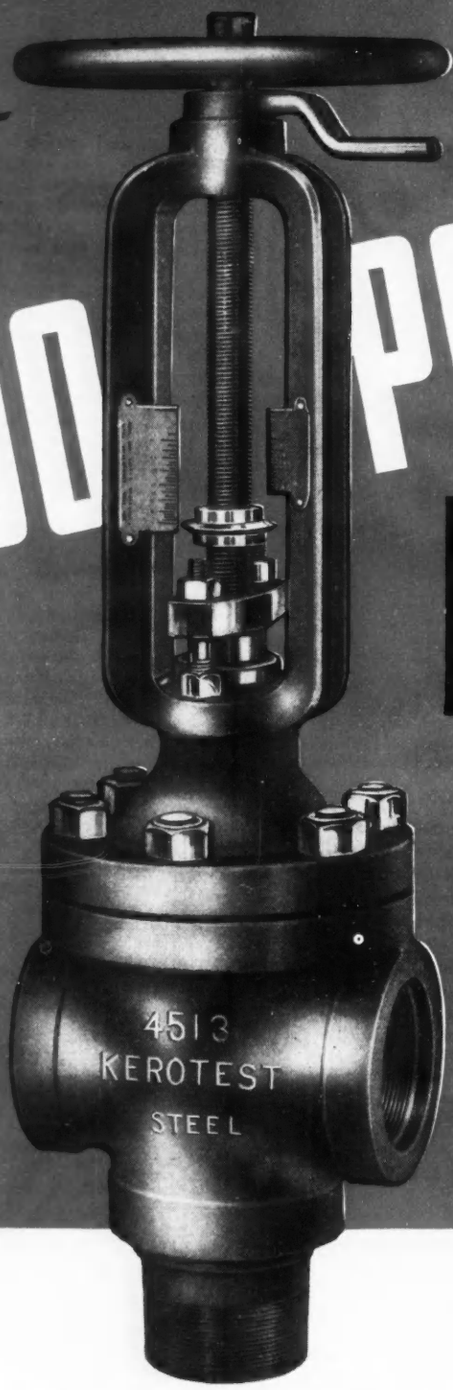
CLOYCE EARLE, 26, a pumper, was fatally injured December 8 when crushed between a walking beam and the bull wheel on the Douglass Oil Company's lease in the Hauschild-Theede pool, near Hutchinson, Kansas. Surviving are his parents, a brother and seven sisters.

R. B. MORRIS, 75, former customs collector and oil man of Houston, died after a long illness at his home, December 7. He is survived by his wife and four sisters.

The

6000 POUND TEST

KEROTEST



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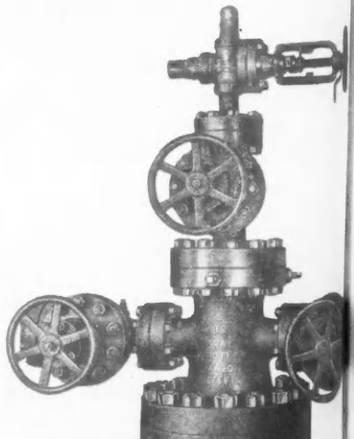
TOPS IN PERFORMANCE ON ANY XMAS TREE



DESIGNED especially for EVERY condition of oil field service and EVERY design of hookup, the new Kerotest Cross Type Control Chokes offer you a new measure of all-service versatility in accurate flow control on pro-rated wells or for controlling back pressures to eliminate sand cutting on sand producing wells.

With the new Kerotest Cross Type Control Chokes, you have available a four way adaptability found only in this new Kerotest design. By merely changing the orifice bushing you can have either (1) a full tubing flow, any adjustment or a complete shut-off; (2) restricted proration flow, any adjustment or a complete shut-off; (3) positive type choke or a complete shut-off and (4) full clearance for swabbing tubing.

Moreover, the strong, all-steel design, the accurate control, simplicity and ease of dismantling all combine to assure an economy and continuity of service that will satisfy the most exacting demands throughout the oil fields.

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Gasoline Weakness Persists

Otherwise the market situation is generally good with statistical position maintained through control

THE oil industry's markets remain somewhat unsteady, because of the persistent weakness of the gasoline situation. Tank car prices of gasoline at refineries lost another ⅛-cent a gallon last week in various districts of the Mid-Continent, after having held fairly steady for several weeks previously.

This action of the gasoline market, in the face of exceptionally strict control of crude oil production, naturally has had a discouraging effect.

The crude oil market, similarly, has appeared somewhat less firm lately, as price reductions have occurred locally in several areas.

New Allowables Loom

Meanwhile, attention begins to center on the conservation officials of the leading producing states as the time approaches for consideration of crude production allowables for January.

Particular significance is attached to prospective action of the Texas Railroad Commission, relative to a future policy toward the East Texas field. The Sunday shut-downs of the field in recent weeks materially helped hold down the output of the state, but opposition to continuation of those shutdowns indicated that Texas control in the future might be less effective.

However, a hopeful attitude regarding the future of production control probably is justified, in view of the exceptionally good results of the past several months, as state authorities have prescribed unusually strict allowables.

Statistics Mostly Good

The statistics of the industry meanwhile remain generally satisfactory with exception of those pertaining to gasoline.

Both crude oil production and refinery operations currently are running at moderate proportions, well in conformity with market conditions.

Output of the wells of the country in the week ended December 11, averaging 3,414,450 barrels daily, was the smallest since last March, and was 9.5 percent larger than in the corresponding week last year. This gain in production over a year ago is in line with the gain that has occurred, meanwhile, in demand for petroleum, as the demand has been running around 10 percent higher this year than last year.

Crude runs to stills in the week ended December 11 averaged 3,200,000 barrels daily, the smallest since last April, and only 8.3 percent in excess of the through-put in the similar week a year previously. Thus the refinery operations were in about the same favorable relation to petroleum consumption as the crude oil production.

Crude Stocks Moderate

Except for gasoline, oil inventories remain advantageous. Crude oil stocks came down further by about a million barrels in the week ended December 4, to 303,034,000 barrels. For all of November, the crude storage showed a net decrease of about 4,000,000 barrels. In October and September, too, the industry had been steadily taking crude out of storage. Consequently, present crude stocks are comparatively small, being only 5.3 percent larger than at this time last year, and only a few million barrels larger than at the beginning of 1937. The expansion of crude stocks since a year ago has not been as large as the gain, meanwhile, in petroleum demand. Thus in terms of days' supply at prevailing rates of consumption, the crude oil stocks are smaller now than a year ago.

The fuel oil market continues firm, with demand good and stocks moderate, and with prices steady. The fuel oil stocks were cut down about a million barrels in the week ended December 11, as cold weather stimulated demand on the part of domestic consumers for heating. At 120,154,000 barrels at the end of the week, the stocks were 10.9 percent larger than those on hand a year previously. However, fuel oil consumption has been running about 15 percent higher this year than last year.

Gasoline Market Weak

The gasoline market lately has been failing to retain the improved status that it was exhibiting for several recent weeks. Prices again have begun to sag, after steadying for about three weeks, following a couple of months of earlier steady decline.

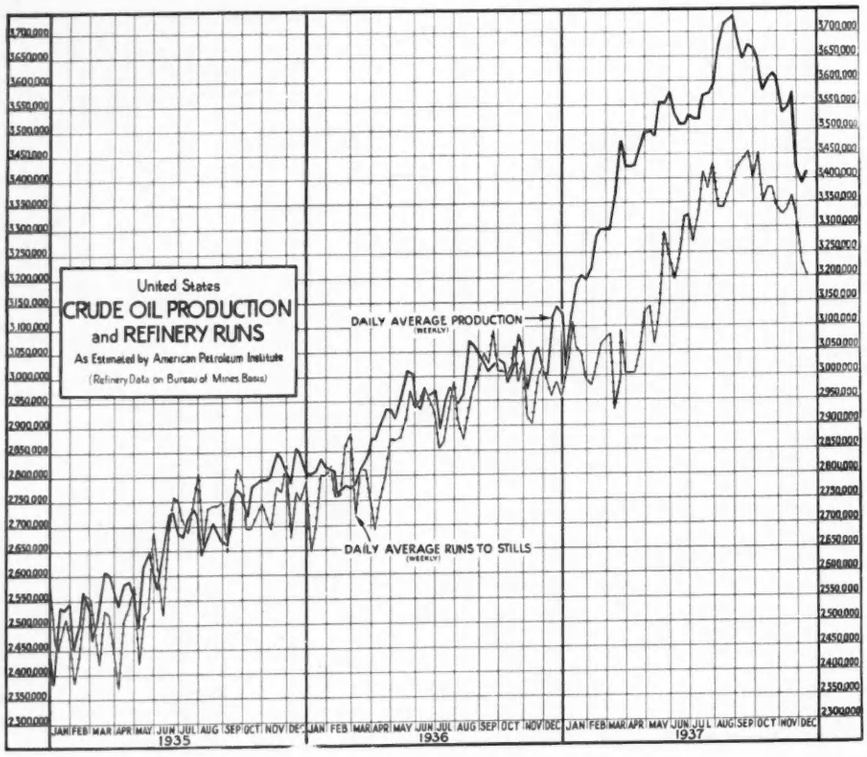
The explanation of the persistent weakness of the gasoline market undoubtedly lies largely in the excessive inventories of that product. Gasoline stocks increased only moderately, about 300,000 barrels, in the week of December 11; but they already were far out of line with market requirements. The supply of 70,513,000 barrels on hand December 11 was 21.5 percent larger than that held one year before, although total gasoline demand has been running only about 10 percent

Trends of United States Production and Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports.

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	Gas & Fuel Oil Stocks (Barrels)
January 2, 1937	3,121,400	3,030,000	287,659,000	62,661,000	106,330,000
January 30	3,194,050	2,995,000	285,384,000	69,540,000	102,078,000
February 27	3,296,100	3,085,000	288,121,000	78,786,000	99,534,000
March 27	3,431,300	3,060,000	293,587,000	*83,538,000	96,591,000
April 24	3,496,400	3,125,000	300,737,000	82,303,000	94,100,000
May 29	3,573,000	3,245,000	306,445,000	78,758,000	96,139,000
June 26	3,529,600	3,235,000	307,679,000	75,427,000	100,395,000
July 31	3,591,900	3,425,000	308,250,000	70,872,000	108,209,000
August 29	*3,731,450	3,425,000	309,506,000	66,997,000	112,111,000
September 25	3,666,300	*3,455,000	307,974,000	65,620,000	116,472,000
October 2	3,647,450	3,400,000	309,036,000	65,266,000	117,076,000
October 30	3,602,950	3,345,000	307,140,000	66,836,000	121,070,000
November 27	3,425,800	3,325,000	304,156,000	68,544,000	121,616,000
December 4	3,387,000	3,230,000	303,034,000	70,193,000	121,329,000
December 11, 1937	3,414,450	3,200,000	.....	70,513,000	120,154,000
December 12, 1936	3,119,500	2,955,000	†287,857,000	58,015,000	108,269,000
Change in past year	+9.5%	+8.3%	+5.3%	+21.5%	+10.9%

*All time peak. † Stocks December 5, 1936.



larger in recent months than in the corresponding months last year.

Louisiana Crude Cut

Latest sign of weakness in the crude market was the 12 cent reduction of the posting for crude oil in the Lisbon field, Claiborne and Lincoln Parishes, North Louisiana, by Caddo Crude Oil Purchasing Corporation, an independent purchaser, effective December 13. The new price adopted was 98 cents a barrel.

Gulf Refining Company, only other buyer in the field, had made no change in price at Lisbon.

Caddo Crude Oil Purchasing Corporation announced also that it would handle all of the Lisbon allowable to which it is connected. Heretofore since completion of its line to Lisbon in November it has been handling only about 75 percent of the allowable. Lisbon has a daily allowable of 10,000 barrels and Caddo will handle about two-thirds of this, with Gulf taking the rest.

In a notice to operators, Caddo Crude Oil Purchasing Corporation said, "Since completion of our line November 6 we have endeavored to interest other purchasers in Lisbon crude, having sent innumerable samples to domestic consumers, as well as customers abroad, and we have failed to develop a market for Lisbon crude at the existing posted price, on account of the following characteristics:

"The sulphur content puts the crude in a sour classification; the straight-run gasoline is very low in octane rating (anti-knock value); and the gas-oil content is of low yield and high pour test." The announcement added that "consequently at no time has the market outlet permitted of taking the full allowable of your wells. We have now obtained an outlet agreement paying 98 cents per barrel."

Summary of Wells Completed in the United States Week Ending December 18, 1937

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total, 1937	Total this Date, 1936
Alabama	.....	.....	.....	.....	.....	2	2
Arkansas	8	6	.....	2	3,488	146	90
California	35	26	.....	9	16,210	1,432	1,080
Colorado	1	.....	.....	1	.....	19	18
Florida	.....	.....	.....	.....	.....	1	2
Illinois	11	3	.....	8	275	372	4
Indiana	.....	.....	.....	.....	.....	146	165
Kansas	41	33	2	6	41,148	2,620	1,667
Kentucky	14	8	3	3	848	555	268
Louisiana	29	10	4	15	5,314	980	987
Michigan	11	6	.....	5	1,346	917	756
Mississippi	.....	.....	.....	.....	.....	15	8
Montana	3	1	2	.....	100	196	189
Nebraska	.....	.....	.....	.....	.....	.....	1
New Mexico	10	9	1	.....	7,370	665	547
New York	.....	.....	.....	.....	.....	25	.....
Ohio	30	10	7	13	203	1,455	1,859
Oklahoma	47	34	3	10	8,498	2,876	2,738
Pennsylvania	5	1	3	1	5	208	.....
Texas	282	228	12	42	346,172	14,773	12,073
Utah	.....	.....	.....	.....	.....	1	.....
West Virginia	17	4	10	3	25	952	598
Wyoming	4	3	.....	1	500	106	93
Total this week	548	382	47	119	431,502	28,462	23,051
Total last week	622	378	71	173	464,336	.....	.....
Total this year	28,002	19,548	2,420	6,134	23,304,982	.....	.....

CRUDE OIL PRICES

Complete tables of prices paid for crude oil at the well in principal fields is shown on page 60 in the issue of December 6. This schedule will appear only in the first issue of each month.

Refinery Prices

U. S. motor gasoline ranged in the Oklahoma market last week about as follows: 62 octane and below, 4 to 4⅜ cents a gallon; 63 to 66 octane, 4⅜ to 4¾ cents; 67 to 69 octane, 4¾ to 5⅛ cents; and 70 to 72 octane 5 to 5⅜ cents.

Corresponding prices in the Chicago market were as follows: 3⅞ to 4¼ cents, 4¼ to 4¾ cents, 4½ to 5 cents, and 4¾ to 5¼ cents.

In East Texas the most common gasoline, 60-62, 400 end-point, was priced generally at 4¼ cents a gallon.

Kerosene prices f.o.b. Oklahoma refineries ranged from 4 to 4¼ cents a gallon for the 41-43 water white grade, and from 4⅛ to 4⅜ cents for the 42-44 water white grade. Corresponding prices in the Chicago market were: 4 to 4¼ cents and 4⅛ to 4⅜ cents.

Fuel oil prices were mostly unchanged. In the Chicago market range oil was priced from 4 to 4⅛ cents a gallon. The No. 1 white oil was priced from 4 to 4⅛ cents, and the No. 1 straw from 3¾ to 4 cents. No. 2 straw was 3¾ to 3⅞ cents and No. 2 dark from 3½ to 3⅝ cents. No. 3 oil was 3⅜ to 3½ cents. No. 4 was $1.05 to $1.10 a barrel to domestic consumers and 95 cents to $1.10 to industrial buyers. No. 5 oils were 80 to 85 cents for domestic and 77½ to 85 cents for industrial sales. The No. 6 oil was quoted to the usual industrial customers at 55 to 65 cents a barrel.

Comparison of Permits Granted for New Wells

STATE	Week Ending Dec. 18	Total this Mo.	Total this Year	Total this Date Last Year	1936 Year Total
Arkansas	1	5	236	100	103
California	28	84	1,556	1,029	1,054
Louisiana	22	65	1,227	1,061	1,107
Kansas	38	107	2,641	1,787	1,873
Michigan	17	46	949	731	762
Oklahoma	43	119	2,679	2,805	2,594
Texas	462	976	16,979	14,712	15,582
Total	611	1,257	21,028	22,225	23,075

Production Still Rising

Texas and Oklahoma largely responsible for increased output; still below figure set by Bureau of Mines estimate

REFLECTING increased output in Texas and Oklahoma, United States crude oil production increased for the second consecutive week in the period ended December 18. The new production rate was 3,435,075 barrels daily. That was 12,675 barrels a day more than in the previous week, but was still 56,225 barrels below the estimated demand for December.

Largely responsible for the slight increase in output last week was the greater production in Texas, Oklahoma and Louisiana, which greatly exceeded small decreases in New Mexico and Arkansas.

Texas production was up 11,200 barrels at 1,324,400 daily, but remained under the Bureau of Mines demand estimate by 75,400 and under the state allowable by 29,742 barrels a day.

Oklahoma likewise showed a gain of 9975 barrels, averaging 570,150 barrels a day, which was 18,650 barrels below the Bureau of Mines recommendation and 20,150 above the allowable prescribed by the state.

Louisiana last week averaged 244,475 barrels daily, or 2050 barrels above the previous week's level. That was 475 barrels more than the indicated demand, but 9500 barrels below the state allowable.

New Mexico output decreased 100 barrels to 107,500 barrels a day, which was 3400 barrels more than the Bureau of Mines recommendation, and 100 barrels less than the state allowable.

Arkansas showed a decline of 2450 barrels daily, averaging 43,775 barrels a day. That was 9875 barrels a day more than the federal allocation.

California remained at the previous week's level, averaging 713,000 barrels a day, which was 33,600 barrels more than the Bureau of Mines estimate and 38,400 barrels more than the recommendation of the Central Committee of California Oil Producers.

Refinery crude runs decline from peak

Washington.—Daily average crude runs to stills in October dropped 62,000 barrels from the September peak, to 3,388,000 barrels, but that figure was 383,000 barrels, or 13 percent, above the October, 1936, level, according to the monthly report of the Bureau of Mines.

Total receipts of crude at refineries during the month were 104,580,000 barrels, of which 102,145,000 barrels was domestic and 2,435,000 barrels foreign oil, average imports of foreign crude of 79,000 barrels a day being virtually the same as in September.

With crude runs to stills aggregating 105,023,000 barrels and fuel and losses 242,000 barrels, consumption ran ahead of receipts, resulting in a decline in stocks from 53,565,000 barrels October 1 to 52,880,000 barrels October 31, the bureau reported.

United States Crude Oil Production

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in Dec.)	State Allowable in December	BARRELS DAILY FOR WEEK ENDED	
			December 18	December 11
TEXAS—				
Texas Panhandle	.....	.....	71,400	71,800
North Texas	.....	.....	72,400	72,300
West Central Texas	.....	.....	33,200	33,500
West Texas	.....	.....	191,800	191,200
East Central Texas	.....	.....	94,600	92,700
East Texas Field	.....	.....	418,700	417,800
South Texas	.....	.....	247,500	241,400
Texas Gulf Coast	.....	.....	194,800	192,500
Total Texas	1,399,800	†1,354,143	1,324,400	1,313,200
CALIFORNIA—				
Long Beach	.....	.....	58,000	58,000
Santa Fe Springs	.....	.....	41,000	41,000
Huntington Beach	.....	.....	38,000	37,000
Dominguez	.....	.....	30,000	30,000
Inglewood	.....	.....	16,500	16,000
Ventura Avenue	.....	.....	35,500	35,500
Seal Beach	.....	.....	9,000	8,500
Midway-Sunset	.....	.....	75,000	76,000
Elwood	.....	.....	7,800	7,800
Kettleman Hills	.....	.....	82,500	82,500
Mountain View	.....	.....	15,500	15,500
Playa del Rey	.....	.....	7,800	8,000
Wilmington	.....	.....	63,000	63,800
Others	.....	.....	233,400	233,400
Total California	679,400	*674,600	713,000	713,000
OKLAHOMA—				
Oklahoma City	.....	.....	138,925	130,625
Seminole Area	.....	.....	106,200	105,075
Crescent	.....	.....	8,575	8,100
Lucien	.....	.....	12,975	13,000
Fitts	.....	.....	77,225	78,350
Edmond	.....	.....	11,950	11,800
Moore	.....	.....	9,375	9,700
Others	.....	.....	204,925	203,525
Total Oklahoma	588,800	550,000	570,150	560,175
LOUISIANA—				
North Louisiana	.....	.....	74,075	70,725
South Louisiana	.....	.....	170,400	171,700
Total Louisiana	244,000	253,975	244,475	242,425
KANSAS—				
Ritz-Canton	.....	.....	5,225	5,025
Chase	.....	.....	5,450	6,850
Hollow-Nikkel	.....	.....	2,275	2,550
Sedgwick	.....	.....	3,575	3,750
Burrton-Haven	.....	.....	10,200	10,125
Lorraine	.....	.....	3,350	2,750
Russell County	.....	.....	31,225	28,500
Silica-Isern	.....	.....	14,650	15,550
Others	.....	.....	102,725	103,775
Total Kansas	186,000	176,700	178,675	178,875
NEW MEXICO	104,100	107,600	107,500	107,600
MICHIGAN	51,800	.....	52,600	53,800
ARKANSAS	33,900	.....	43,775	46,225
MOUNTAIN STATES—				
Wyoming	57,100	.....	49,800	50,300
Montana	15,800	.....	15,400	15,200
Colorado	4,400	.....	4,200	4,300
Total Rocky Mountain States	77,300	.....	69,400	69,800
EASTERN STATES—				
Pennsylvania Grade	.....	.....	74,600	80,600
Southern Illinois (New Pools)	.....	.....	22,100	21,700
Illinois-Indiana (Old Pools)	.....	.....	14,800	15,000
Others, Eastern	126,200	.....	19,600	20,000
Total Eastern States	126,200	.....	131,100	137,300
Total United States	3,491,300	.....	3,435,075	3,422,400

† Allowable as of November 16; increased by December 1 through completion of new wells.
* Recommendation of Central Committee of California Oil Producers.

Reduce central Kentucky gas rate

The Central Kentucky Natural Gas Company was ordered last week by the Kentucky public service commission to reduce its wholesale rate for natural gas to 30 cents per 1000 cubic feet at Paris, North Middletown and Frankfort. The present rate is 37 cents at Paris, 45 cents at North Middletown and 35 cents at Frankfort. J. A. Krug, special consultant of the commission, said the order would effect a $35,000 reduction in revenues of the company.

Bureau report reveals less favorable demand

October brought a further leveling off of demand for petroleum and petroleum products, following a similar less favorable trend in September, it was revealed in the late monthly petroleum statement of the Bureau of Mines, a portion of which is presented in an accompanying table.

The report embodied the statement that total demand for gasoline in October amounted to 49,191,000 barrels, or 5 percent more than in that month last year. But the indicated domestic demand for motor fuel in October was 45,361,000 barrels, or only 2.5 percent higher than a year previously. Exports amounted to 3,830,000 barrels up 54 percent.

Stocks of gasoline, which ordinarily are generally reduced in October, rose this October by 2,657,000 barrels to a total of 68,037,000 barrels on October 31.

Pennsylvania gas rate hearings continue

Continuing its investigation of natural gas companies for the announced purpose of bringing about a reduction in rates, the Pennsylvania public utility commission last week conducted hearings for 10 companies. Those heard were:

Warrendale Oil & Gas Company and J. L. Fowler & Company, serving Warrendale, Allegheny County; Hoch Brothers Natural Gas Company and Prospect Oil & Gas Company, Chicora, Butler County; Johnstown Fuel Supply Company, Cambria County; W. C. Russell & Company, West Sunbury, Butler County; Jacob Morris, Gibsonia, Allegheny County; Russelton-Curtisville Gas Utilities, Butler County; Taylorstown Natural Gas Company, Pittsburgh, and The Triangle Company, McKees Rocks, Allegheny County.

Supply and Demand of All Oils

From Bureau of Mines Monthly Petroleum Statement for October
(Thousands of barrels of 42 gallons)

	October, 1937	Sept., 1937	October, 1936	January-October 1937	January-October 1936
New Supply:					
Domestic production:					
Crude petroleum	110,911	109,980	95,795	1,066,868	909,846
Daily average	3,578	3,666	3,090	3,509	2,983
Natural gasoline	4,418	4,272	3,830	40,028	34,260
Benzol[1]	229	256	230	2,457	2,063
Total production	115,558	114,508	99,855	1,109,353	946,169
Daily average	3,728	3,817	3,221	3,649	3,102
Imports[2]:					
Crude petroleum:					
Receipts in bond	145	187	93	1,627	1,946
Receipts for domestic use	2,290	2,164	2,862	21,040	25,011
Refined products:					
Receipts in bond	1,530	2,464	1,919	19,265	15,304
Receipts for domestic use	548	433	453	6,531	5,116
Total new supply, all oils	120,071	119,756	105,182	1,157,816	993,546
Daily average	3,873	3,992	3,393	3,809	3,258
Increase in stocks, all oils	3,488	122	[3]5,049	44,491	[3]14,269
Demand:					
Total demand	116,583	119,634	110,231	1,113,325	1,007,815
Daily average	3,761	3,988	3,556	3,662	3,304
Exports:					
Crude petroleum	6,692	6,602	4,708	55,525	42,373
Refined products	9,457	10,346	6,518	88,280	65,385
Domestic demand:					
Motor fuel	45,361	47,245	44,253	436,637	402,279
Kerosene	4,985	4,397	4,370	42,826	40,388
Gas oil and distillate fuels	9,957	8,672	8,712	89,910	78,171
Residual fuel oils	26,847	26,544	27,301	270,744	252,305
Lubricants	1,972	1,968	1,911	19,848	18,917
Wax	83	82	96	889	895
Coke	706	586	601	4,912	5,199
Asphalt	2,268	3,009	2,504	20,613	19,415
Road oil	526	1,068	631	7,570	7,132
Still gas	5,250	5,369	4,680	51,548	45,407
Miscellaneous	193	218	193	1,949	1,897
Losses	2,286	3,528	3,753	22,074	28,052
Total domestic demand	100,434	102,686	99,005	969,520	900,057
Daily average	3,240	3,423	3,194	3,189	2,951
Stocks:					
Crude petroleum	308,472	309,742	292,271	308,472	292,271
Natural gasoline	5,444	6,278	4,555	5,444	4,555
Refined products	249,221	243,629	230,605	249,221	230,605
Total, all oils	563,137	559,649	527,431	563,137	527,431
Days' supply	150	140	148	154	160

[1] From Coal Division. [2] Imports of crude as reported to Bureau of Mines; all other imports and exports from Bureau of Foreign and Domestic Commerce. [3] Decrease.

Courts

[*Continued from Page 12*]

such products, thereby leading to the building up of surplus and to the economic and physical waste consequent thereon.

"I am therefore, requesting you, as chairman of the marketing committee of the Planning and Coordination Committee, to take action which we deem necessary to restore markets to their noral condition in areas where wasteful competition has caused them to become depressed.

"Number and extent of these situations would make it impractical for the petroleum administrative board acting alone to deal with each specific situation.

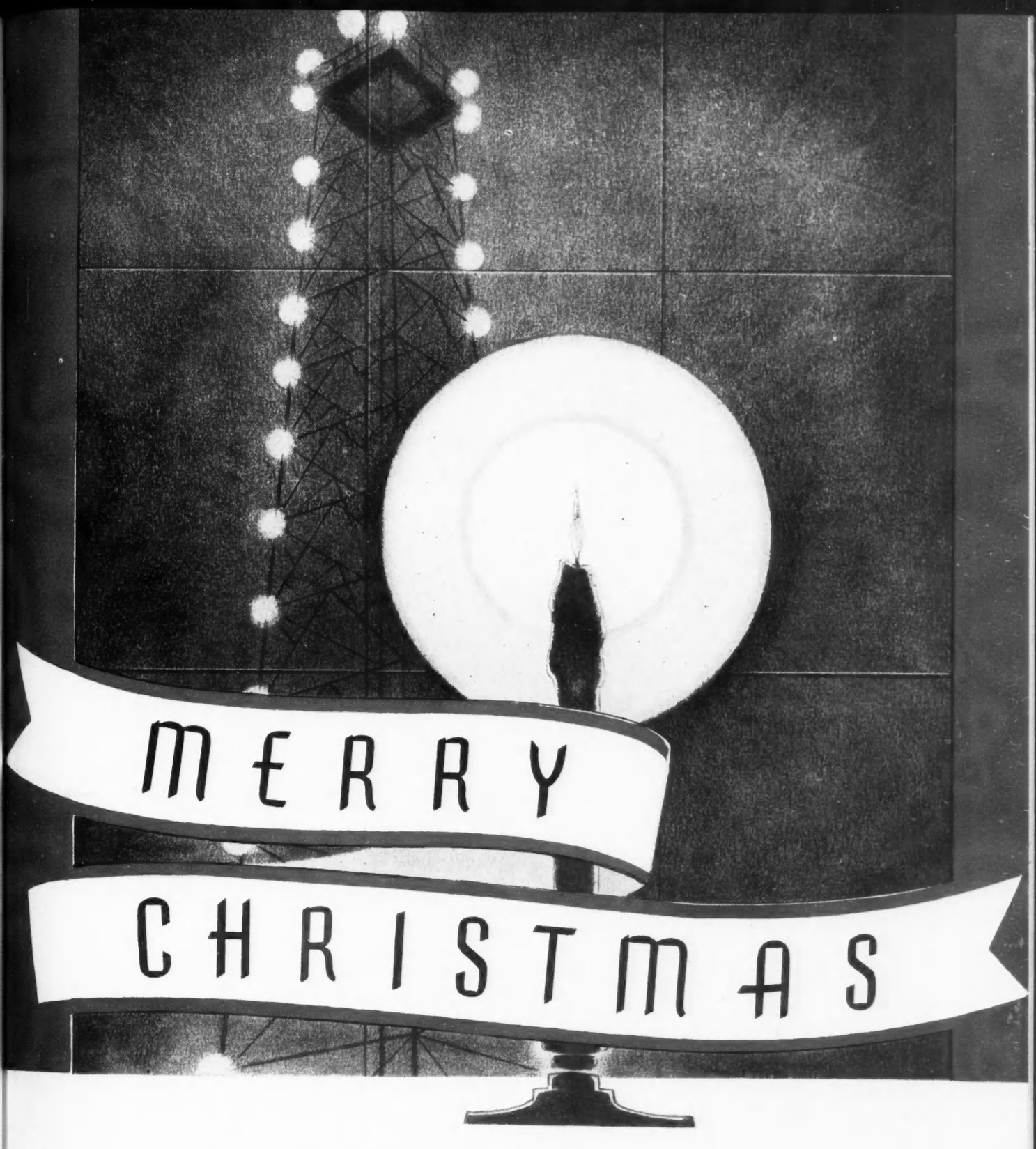
"Therefore, I am requesting and authorizing you, as chairman of the marketing committee, to designate committees for each locality when and as price wars develop, with authority to confer and negotiate and hold due public hearings with a view to ascertaining the elements of conflict that are present, and in a cooperative manner to stabilize the price level to conform to that normally prevailing in contiguous areas where marketing conditions are similar."

Accompanying the letter was a memorandum by Louis Titus, chairman of the legal committee of the P and C Committee, which read: "My conclusion is that this letter from the petroleum administrator, is for all practical purposes a complete protection to you and your committee to engage in all reasonable activities to restore prices to normal levels. I further conclude that the agent of the President, having solicited the taking of action to stabilize the prices, it is unthinkable that there could ever be any prosecution or criticism by the government for doing the very thing which the President's agent has asked you to do."

McDowell's testimony attacked the prosecution claim that purchases of distress gasoline by defendant major companies from independent refiners was a "price fixing" program. The witness said the plan called for payment of "fair prices" for gasoline instead of "chiseling" on the small refiner as had been prevalent in the past. Each company was left to purchase in accordance with its own needs and no prices were set at which purchases were to be made. In contrast with governments sponsored programs, which he described as failing to accomplish their purpose in 1934, there was no central buying agency through which purchases were made or regulated.

Contradicting the government's charge that major company purchases were responsible for tank car gasoline price increases from the 3¼-cent figure that prevailed early in 1935, McDowell testified that the price was up a half cent before the plan of distress gasoline purchases had been approved by Arnott on March 7. The plan, he said, had been made contingent upon passage of the Connally Hot Oil Bill as it was considered useless to take up distress gasoline until the flow of hot

[*Continued on Page 64*]



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Each and every member of our
organization extends to you . . .
best wishes for the holidays
and the coming New Year.

THE CONTINENTAL SUPPLY COMPANY

WORLD DEVELOPMENT and TECHNOLOGY

Edited by
WM. V. GROSS, Associate Editor

Ask Board to Visit

Turner Valley operators want duties on crude imports; Outpost, nearing Madison, may be major extension.

OPERATORS in Turner Valley, Alberta, preparing for an investigation of the oil and gasoline industry shortly after the first of the year by the federal tariff board, have extended a formal invitation to the board to visit the field and obtain a first hand picture of conditions before opening their probe. The invitation was made last week by the Petroleum Producers' Association, organized last fall when proration was first instituted in the relatively new Canadian crude oil field. The association has been active in bringing about extension of markets for Turner Valley operators and hopes the tariff board investigation will bring duties on imports of crude and refined products from the United States which, it is claimed, are supplying a market rightfully belonging to the Canadian producer.

40 Tests Drilling

Potential crude production of Turner Valley, at present choked to 35 percent because of limited transportation and marketing facilities, is now 28,000 barrels daily, and is expected to reach 30,000 barrels by the end of the year. Two score wells are drilling which, when completed, will add an estimated 10,000 barrels to this figure in a few months. The present potential compares with production of 3500 barrels daily in February and 5600 barrels in August. An increase of 11,000 barrels was recorded in the past four months.

Royalite Oil Company, Ltd., last week completed installation of the largest storage tank in Turner Valley, having a capacity of 55,000 barrels of crude. It is to serve as an emergency storage reserve in case there is an interruption in pipe line service between the field and Calgary, refinery and shipping point, explained J. H. McLeod, president.

First Cable Completion

The most interesting official completion of many weeks was National Petroleum Corporation's 1, Legal Subdivision 8, Section 29, Township 18, 2-w5, which is bottomed at 7217 feet. Two days after acid treatment was given, production was between 65 and 70 barrels of 45 degree gravity an hour, assuring a potential based on a five-day test that will place it among the field's largest producers. Before treatment with 10,000 gallons, it was producing about 300 barrels a day. The well is the first Turner Valley test to complete with cable tool equipment. It was drilled to 5786 feet with rotary equipment, at which point the changeover was made. The procedure reversed that followed at many other Turner Valley wells and eliminated the danger of mudding off production. National Petroleum Corporation has made arrangements to market its crude independently and will not be subject to proration now set at 35 percent by Imperial Oil Company, Ltd., and British American Oil Company, Ltd., principal crude buyers.

Large Completion Due

Royal Canadian Oils, Ltd., stopped drilling on Legal Subdivision 15, Section 20, Township 18, 2-w5, in South Turner Valley, at 7416 feet, or 456 feet in the Madison lime, producing horizon. Tubing was run over the week-end and as a production test was started, the well gave indications of being one of the field's largest. It recorded 3,000,000 cubic feet of gas with heavy pressure. Location is just three-eighths of a mile wests of Davies Petroleums, Ltd.'s 2, largest crude producer in Canada with a daily potential of 3000 barrels.

West Flank Oil Company's 1, Legal Subdivision 1, Section 32, Township 18, 2-w5, completed a week ago at 7150 feet, was producing about 600 barrels daily following acid treatment as the week closed. Commoil's 1, Legal Subdivision 15, Section 29, Township 18, 2-w5, was still awaiting completion of storage before giving acid treatment. Tubing is in the ground and all other arrangements made for the treatment. Located west of all present completed Turner Valley tests, the well is being closely watched in view of heavy production during a two day test just following completion. The yield was 1278 barrels the first 24 hours, and 1163 barrels during the second period.

Two tests were spudded during the week and seven other tests are to start in Turner Valley this month. Three others, drilling in Madison lime, are due for early completion.

Hits Gas Cap

On the Highwood-Sinclair structure, Green Valley Petroleums' Banner 1, Legal Subdivision 6, Section 34, Township 18, 3-w5, struck a 1,000,000 cubic foot gas flow at approximately 4700 feet, about 50 feet above the brown sand in the Lower Dalhousie, where operators hope crude may be encountered. It is the second large gas flow encountered by the wildcat, which, if successful, would extend the crude area of Turner Valley by two miles south and five miles west. The Madison lime, producing formation in Turner Valley, is expected in another 300 feet. Casing is on hand for carrying the test to the Madison, if commercial production is not found in the Lower Dalhousie.

Freeze Helps

On Moose Dome, Model Oils, Ltd.'s Canyon 1, Legal Subdivision 16, Section 30, Township 22, 6-w5, was drilling below 208 feet. Movement of material to the location was greatly facilitated last week with the freezing over of Canyon Creek, which will serve as the "highway" to the well during the next few months.

Blackfoot Ribstone Oil Company announced a location on Section 28,

MEXICO'S YIELD LIKELY TO PASS 46,000,000 BARRELS

Mexico City, Mex., Dec. 17.—Mexico's oil production this year promises to reach the record recent level of over 46,000,000 barrels, it is indicated by the fact that the output in 1937 up to November 30 was 42,557,163 barrels according to an estimate of the Ministry of National Economy, today. Production last year was 36,768,182 barrels.

Up to the end of November 40 wells had been drilled, of which 25 were producers, and 172 permits, a number far in excess of those granted in 1935 and 1936 combined, had been issued.

Strikes and other troubles in the industry did not hamper oil production seriously this year, and the ministry anticipates that exports will top 30,000,000 barrels.

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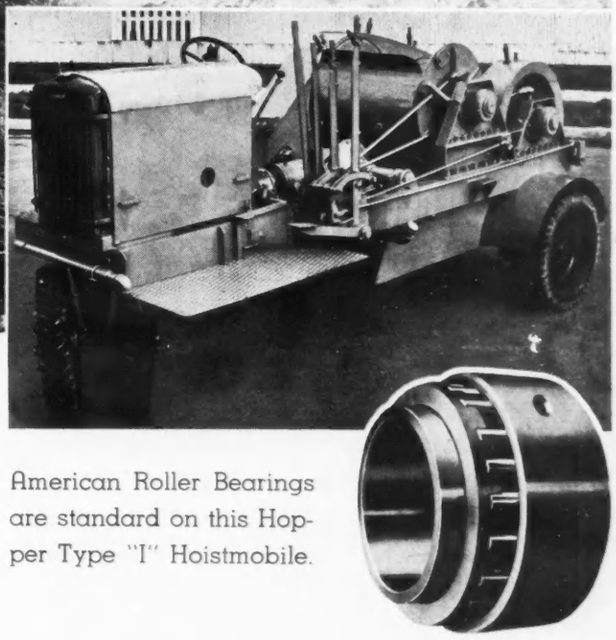

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AMERICAN *HEAVY DUTY* **ROLLER BEARINGS**

Township 43,2-w4, in the Ribstone field, on which drilling is to start before the first of the year. The test will be about 8 miles southwest of Dina Oil & Refining Company's holdings on this structure. The latter company's No. 4, Legal Subdivision 13, Section 9, Township 45, 1-w4, encountered a flow of gas at 1143 feet which is to be used as fuel for the camp and the company's refinery. Drilling was at 1150 feet at last report, with casing set to 1140 feet. Production is expected at 1690 feet. The company completed two producers on this structure early this year.

Government firm completes gasser in northeast Mexico

An important producing gas well, Petronac Laredo No. 7, has been brought in by General Administration of National Petroleum, the official government company, some four miles southeast of Nuevo Laredo, opposite Laredo, Texas. Plans are being made for this well to supply Nuevo Laredo with gas. The well began production with 2,500,000 cubic feet a day at 715 feet. It is one of the largest in the northeastern Mexican border fields.

General Administration has also brought in a fair producing oil well, Petromex 41 in the Rancho de Abajo district, Vera Cruz state. It began production with 314 barrels daily at 2,685 feet. This well is about 600 yards from the General Administration's Petromex 22, also a producer.

In addition to the above, the government oil company recently completed as a small producer Petromex 5, on the left bank of Panuco River in the federal oil reserves in Buena Vista zone, Vera Cruz state. The well initially yielded 94 barrels a day from 2215 feet.

There is still considerable oil in the Panuco belt, one of Mexico's oldest and most worked petroleum sectors, it is indicated by recent completion of Mexican Sinclair Oil Corporation's Gonzalez 15, about 700 feet from the heart of the Panuco sector. The well began production with 300 barrels daily of high grade oil at 1600 feet. This is the best producing well that has come in in the Panuco strip, Vera Cruz state, in some time.

Find promising structures in Afghanistan, is report

Three geological parties in the field for Inland Exploration Company in Afghanistan, working under direction of Dr. F. G. Clapp, director of the company and consulting geologist of New York, are reported to have found several very promising structures. However, the concession covers practically all of Afghanistan and considerable additional geological work will have to be done before selection of location for the first wildcat can be made.

Amiranian Oil Company, an affiliate of Inland Exploration Company, has three parties working on a concession granted in Iran last year. These parties also are working under direction of Dr. Clapp.

55,000 acres added to oil reserves in Mexico

National oil reserves have been expanded with the incorporation of nearly 55,000 acres in Vera Cruz and Tabasco states, according to information received December 17 from Mexico City. This includes some 48,000 acres of Lot 148 of the famous Amatlan area, Vera Cruz. The rest of the property is Lot 5 of the Santa Emelia tract, Espinal municipality, Papantal zone, Vera Cruz, and in Tabasco y Huimaguillo municipality, Tabasco. The latter tract was incorporated when the Mexican Eagle Oil Company (El Aguila) withdrew its rights to it.

An additional 57,828 hectares are to be incorporated into the federal oil reserves of Mexico by a ruling of a Mexico City district court that the ministry of agriculture was correct in issuing the order that such action must be taken with regard to that much property of Sra. Carmen de la Serna de Barrios in the Sabino Gordo belt, Aldamas municipality, Tamaulipas state. The court found that the ministry was obliged to so act as a presidential decree demanded incorporation of the land in the reserves.

Neusiedl, 26, Oktober 1937.
The Oil Weekly
Houston, Texas, U.S.A.

I am drilling engineer in Austria, thirty years old, and read in our office each week your "Oil Weekly."

I should like have a correspondence with one or two American drilling engineers. Can you send me the name and the address of such men, who would like have with me a correspondence.

Gluckauf!

Ing. Ernst Indra
Neusiedl/Zaya
Austria.

Tampico unions strike as protest against labor board

Oil industry labor unions in Tampico, Mexico, called a 24-hour strike at noon on December 10 as a protest against the failure of the Central Labor Board in Mexico City to hand down a decision favorable to the employees in connection with the difficulties the companies and their workmen have had for some time.

Operations were suspended at all refineries and loading terminals in Tampico, with the exception of those of the government-controlled Compania de Petroleos de Mexico en Liquidacion (formerly the Petromex).

On December 9, Cia. Mexicana de Petroleo "El Aguila" S. A. and the Sinclair-Pierce Petroleum Corporation made energetic protests direct to President Lazaro Cardenas against this threatened strike, claiming the employees were violating their agreements with the companies in that there would be no strikes while the Central Labor Board was making its investigation.

President Cardenas, in a public statement that same day, denounced the threatened strike and called upon the unions to live up to their agreements. He further announced that if the strike did take effect, same would be declared illegal, which meant that the workmen would receive no wages for the time they remained away from their duties.

Following the 14-day strike last May and June, President Cardenas appointed a committee of three government experts to examine the books of the oil companies, to ascertain their ability to make the wage increases demanded by the unions. This committee, in its report, recommended that the companies grant increases totalling 26,000,000 pesos (slightly more than $7,000,000 U. S. currency) per annum. The companies immediately announced that such increases were beyond their ability to meet, and at the same time, withdrew the offer they had made of voluntarily increasing wages to the extent of 16,000,000 pesos ($4,400,000 U. S. currency) per annum.

The Central Labor Board announced recently that its decision on the wage controversy would be handed down on or before December 18, but the workers nevertheless showed their impatience by calling the 24-hour strike. Practically all of the field workers in the various oil camps in the northern part of the State of Vera Cruz likewise joined in the strike. However, the Aguila's employees at Poza Rica did not participate in same.

Brazil and Bolivia may join in search for new fields

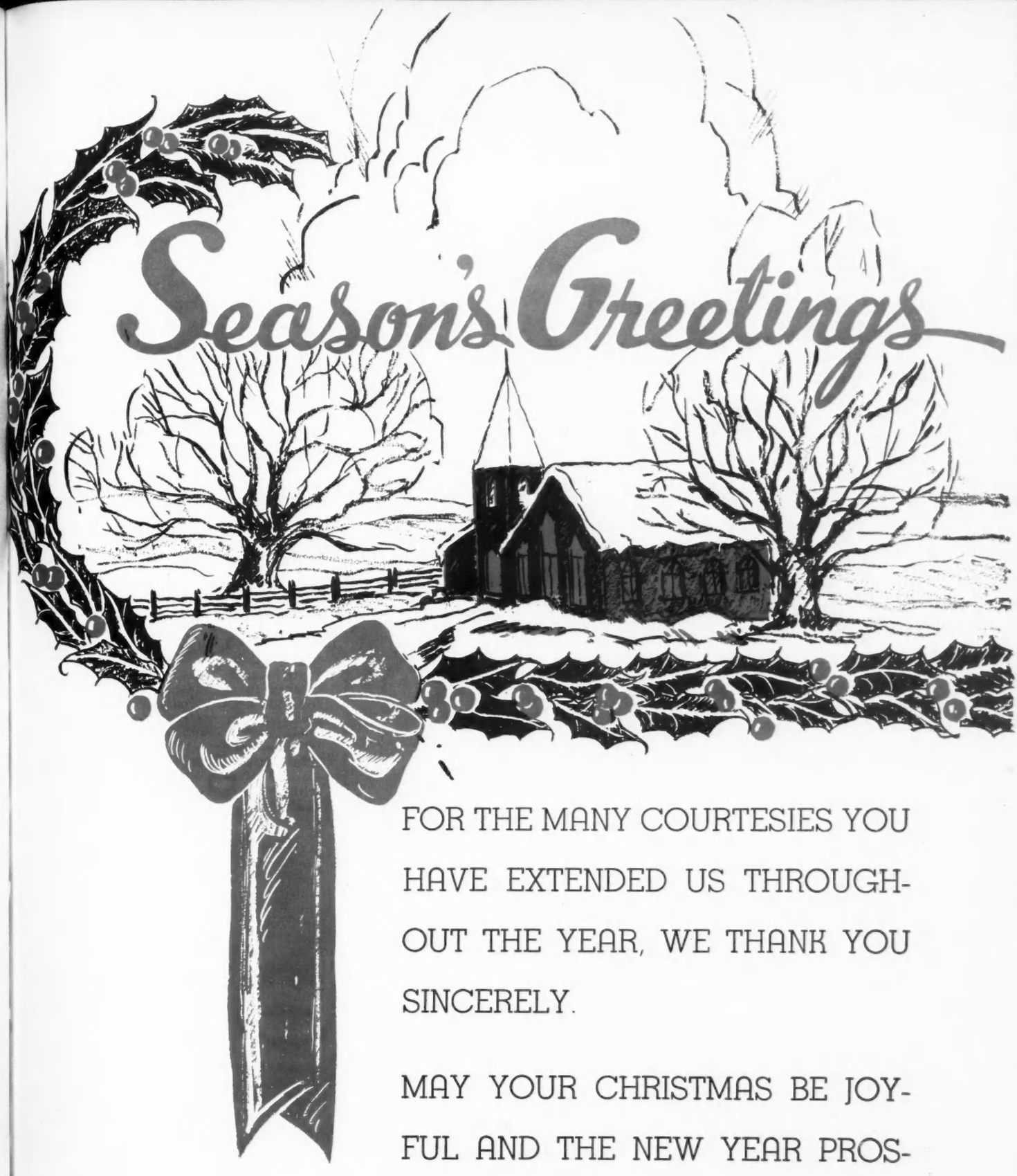
Brazil and Bolivia, operating jointly, contemplate fostering serious exploratory work in the sub-Andean zone of Brazil from the Parapeti River northward to the Bolivian border, according to Robert G. Caldwell, American minister at La Paz, Bolivia. Recommendations have been made that the two governments put up $1,500,000 to send a mixed technical commission into the region for a three-year study of oil possibilities.

Caldwell further advises that should the studies and explorations mentioned lead to commercial exploitation, Bolivia, in recompense for Brazilian aid in the preliminary phase, is obligated to organized mixed Brazilian-Bolivian companies to exploit the petroliferous areas, to refine the petroleum produced, and, after satisfying Bolivian requirements, to supply the Brazilian market. Petroleum not marketed in Bolivia or Brazil may then be exported in free transit through Brazil, preference being given under equal economic conditions to the Santa Cruz-Corumba route.

Recommendations made to the governments provide that Bolivia shall consent to construction of a pipe line from the possible fields to the Brazilian frontier or to a port on the Paraguay River.

Colombian production

Colombia produced 1,592,592 barrels of crude oil in August. Of this amount, 135,316 barrels were refined. The remainder was held in storage or exported.



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Sabalo temporarily blocks big Mexican Eagle deal

Mexico City, Mex., Dec. 17.—Mexican Eagle Oil Company's agreement with the federal government for exploitation of Poza Rica and two adjoining fields in Vera Cruz state is temporarily held up by a temporary injunction Sabalo Transportation Company, which operates considerably in eastern and southern fields of Mexico, obtained from a local court on the ground that the pact infringes rights it obtained in Poza Rica several years ago.

The case is to be heard more extensively next week.

Oil circles opine that the Eagle (Compania Mexicana de Petroleo, El Aguila, S.A.) and the government will win.

Courts

[*Continued from page 58*]

oil from East Texas had been curbed. He also testified that no suggestion was ever made that independent refiners curtail production, which the government charges was sought by major companies in an attempt to further raise spot tank car prices. McDowell described a meeting held in Chicago in June, 1935, after invalidation of the NRA by the supreme court's ruling on the Schechter case, which was called by Arnott. At the meeting, Arnott said he had talked with officials of the code authority who were of the opinion that the industry should attempt to carry on its stabilization activities even though the code was out so that advantages gained might be retained. Meetings of a committee established under the code to obtain surveys of distress gasoline were continued throughout 1935 as a result of Arnott's report and because of newspaper reports from Washington.

Over the objection of prosecution attorneys, the defense was permitted to read excerpts from newspaper stories quoting the president, Donald Richberg, NRA coordinator, and other Washington officials. Judge Stone remarked that Richberg's statements were of little value but permitted them to be read. The coordinator was quoted as saying that it would be unfair to industry if unfair practices were revived and he urged that employers of labor cooperate pending determination what should be done to carry out code objectives. The president's statement read pointed to the danger that wages would be reduced and hours lengthened as a result of NRA's invalidation.

John C. Marshall, assistant to the general sales manager of Standard Oil Company of Indiana, testified that the basis of the entire gasoline price structure "is fundamentally competition." His testimony refuted the government claim that retail and jobber prices were directly in line with spot tank car market prices which the companies are charged with controlling. He said that prices were influenced by many factors besides the spot market.

GEORGE LaPIERE, consulting geologist at Robinson, Illinois, left the coal basin area for West Virginia last week, where he will look after some gas field matters in which he is interested.

PIPE LINE NEWS

New Lisbon pipe line is planned

Shreveport.—Barbour and Woods (Clyde A. Barbour, First National Bank Bldg., Houston) is planning a six-inch all-welded line from the Lisbon field to a loading rack that will be built on the Louisiana and Arkansas Railroad near Minden, a distance of 28 miles. The concern was reported recently as signing three-year contracts for connections in Lisbon, and as proposing a line from Lisbon to a point on the Ouachita River near Monroe, Louisiana, whence the oil would be barged to tidewater. It is understood that Barbour and Woods have secured a number of connections that call for the payment of gravity prices, which is $1.10 for the 34 to 34.9 crude produced at Lisbon. The proposed new outlet is expected to provide for a capacity of 7500 barrels daily, with the survey for right-of-way to begin immediately.

Before January 1, Atlas Pipeline Company is expected to begin movement of 150,000 barrels of Lisbon crude to East Texas for Hurricane Refining Company (M. J. Grogan) where the Lisbon crude will be processed in Grogan's two refineries. What effect this will have on 5500 barrels daily that DeSoto Pipeline Company is gathering and delivering to Grogan's two East Texas refineries has not been announced but it may mean that another buyer for this crude may be sought.

Whether the posted price of 98 cents announced effective December 13 by Caddo Pipeline Corporation, a Grogan subsidiary, will prevail, has not been announced, but it probably will or a lower rate may even be paid, as there is some stored oil in Lisbon that accumulated during the curtailment of Gulf Pipeline Company's purchases there between October 1, when it reduced its purchases, and November 6, when Grogan completed his line to the field.

Talk of West Texas to Des Moines gasoline line

Tulsa.—The proposal to build a gasoline line from West Texas to Des Moines got another boost in Tulsa December 14 and 15 when traffic managers of independent refining concerns met to consider opposition to the rate increase of 15 percent now being asked by the rail lines.

Talk of the gasoline line has been frequent over the past two years. The traffic manager, however, said that the line certainly would be built if rail rates are increased.

The route would parallel for part of its distance the trunk lines out of the old Ranger area into Oklahoma. The distance is 1300 miles and the cost is estimated at $12,000,000.

New projects planned for Corpus Christi area

Corpus Christi.—Further expansion of oil shipping facilities at the port of Corpus Christi, plus new pipe line construction in several fields of Nueces County, became known December 17.

Permit has been asked for a slip at Avery Point on the Corpus Christi ship channel for the Nueces County Navigation District No. 1, which will lead to the building of a dock for loading of crude oil. It will be the sixth at the port. The slip will be 620 feet long, 200 feet wide and 32 feet deep. Southern Pipe Corporation will lay approximately eight miles of one to four inch gathering system in the Saxet field, Nueces County, to increase the gas capacity for Southern Minerals Corporation's plant in the same field by 50,000,000 cubic feet. In addition a 20-inch line will be constructed 15,000 feet from this plant to the site for Columbian Carbon Company's plant to be built within the next few months. At the same time, it is understood that the company will further expand its natural gasoline plant in the field.

Construction will be commenced in the immediate future on a four-inch pipe line for Southern Pipe Line Corporation from the company's properties on the King Ranch about five miles south to Crude Oil Company's main line into Corpus Christi.

It is reported, but no confirmation is available, that the Valley Pipe Line Company interests, headed by Murchison and Closuit of San Antonio, will announce an extensive pipe line construction program for South Texas to be started immediately after the first of the year. The project, it is understood, will terminate at or near the Corpus Christi ship channel. Another pipe line project yet to be announced, would tie in from the group of fields along the Agua Dulce trend of western Nueces County to the Corpus Christi channel. Just how far-reaching the program will be is not known. Some rumors far from confirmed are that it will connect to Magnolia's new strike in southeastern Jim Wells County.

Finish Turner Valley loop

Royalties Oil Company, Limited, last week completed a 15-mile loop in its pipeline, linking the Turner Valley field of Alberta, Canada, to Calgary, refinery and shipping center. The loop increases capacity of the line from 10,000 to approximately 13,500 barrels daily.

PAGE

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PAGE *Welding* WIRE

OKLAHOMA FIELDS

Magnolia's well finds fault in West Fitts pool.

* * *

Centrahoma test swabs with 300 feet of oil in hole.

Tulsa.—No one area could claim particular honors for Oklahoma last week. A well found a fault in the West Fitts pool; a possible southern extension of the recently revived South Braman area in Kay County was watched; Oklahoma and Cleveland counties reported new wildcats and crews continued efforts to make producers out of two deep wells in southern Oklahoma.

Magnolia Petroleum Company's Mayhue 1, SW SE NE 20-2n-6e, in the West Fitts pool of Pontotoc County, faulted from the Atoka series to Pennsylvania conglomerate. Top of the Pennsylvania Caney was at 3525 feet. The test missed the Wapanucka and Union Valley limes and the Cromwell sand. Top of the Caney shale was found at 3790 feet.

Continental Oil Company's Thompson 1, SW NW SW 35-2n-7e, a half mile north of production in the Jesse pool will probably be deepened below 4560 feet to Sylvan shale before trying for production. It had a good odor of oil in the Hunton lime.

Carter Oil Company et al's Claytor 1, CW½ SE NW 27-2n-9e, in the Centrahoma area of Coal County, was swabbing and bailing with about 300 feet of oil in the hole. No gauge of the oil was made. Earlier, the well had taken a drill stem test with packer set at 6671 feet. When opened 1½ hours it showed 190 feet of water. It was then plugged back to 6475 feet, the present total depth.

Mid-Continent Petroleum Corporation et al's R. McClellan 1, SWc NW 19-11n-5e, north of the East Shawnee pool of Pottawatomie County, was a location. Stanolind Oil & Gas Company and Amerada Petroleum Corporation are assisting in the test.

Oklahoma City Sector

South extension to the old Braman pool of Kay County may be given another southward push if commercial production is had at Helmerich & Payne's Scott 1, SEc NE 20-28n-1w, which had derrick up and was moving in tools. The new test is slightly more than a mile south of present production. Possible producing formations to be encountered are Stalnaker, Layton and Wilcox sands.

To the west, in Grant County, Carter Oil Company's Booher 1, CWL NW SE 16-25n-3w, in the Lamont area, was drilling below 5263 feet in lime and chert. Barclay 1, CE½ SE NE 17-25n-3w, was drilling below 3850 feet in shale. Magnolia Petroleum Company's Reynolds 1, NEc SE 19-25n-5w, had stuck drill pipe at 5480 feet and was running acid.

Ardmore. — Gulf Oil Corporation's Smith Estate 1, C SW SW 26-2s-3w, in the old Fox field of Carter County, came in late Thursday night averaging from 28 to 30 barrels of 66.3 gravity oil per hour. Production is from 7773 feet in oolitic lime through ½-inch choke on 2-inch tubing. The well made 425 barrels in 14½ hours. Total depth is 7773 feet in the lime, the well having been deepened from 7677 feet where 7-inch casing had been set.

An important wildcat is to be started in Oklahoma County north of the Edmond pool. The test will be W. O. Allen's Jackson 1, CE½ SE NW 6-14n-3w, on a farmout from Shell Petroleum Corporation. Cellar and pits have been started. Wilcox sand is expected at around 6600 feet in the venture, which is being supported by several major companies, among them, Carter Oil Company.

Hollenback et al's Mantooth 1, NWc 24-6n-1e, east of Lexington in Cleveland County, started cellar and pits last week for another wildcat in the southeast corner of the county. Intended for a test of the Wilcox sand, the well will also do much toward establishing extent of the Nehama ridge in that part of the state, the structure on which several of the states' most prolific producing areas have been found. Also in the area is W. A. Delaney's Bugher 1, SEc SW 12-7n-2w, a location, four miles southeast of Noble.

Harper & Turner's Sears 1, CW½ NW NW 13-9n-2w, southeast of Moore pool, was cleaning out preparatory to resuming drilling at 6850 feet. Operators recovered 270 feet of drill pipe which had been lost in the hole, causing a long fishing job.

One and one-quarter miles south of the Seward pool in Logan County, Stanolind Oil & Gas Company and Amerada Petroleum Corporation's Blount 1, CWL NW 26-15n-3w, was a wildcat location.

Continental Oil Company's Conway 2-A, NEc SW 16-23n-2w, in the Billings pool of Noble County, was completed for a potential of 318 barrels of oil daily and 470,000 cubic feet of gas. It was producing from 4287 feet in Wilcox sand. Conway 14, SE SW SW 16-23n-2w, flowed 1383 barrels of oil in six hours from 4297 feet in sand.

Ardmore Sector

In southern Oklahoma, Gulf Oil Corporation's Johnson 1, C SW NW 27-2s-3w, deep test in the old Fox field of Carter County, was preparing to reacidize after it had washed with 70 barrels of oil at 7970 feet and had no show. Acidization at 7909 feet did not help, and it was cored ahead. A core from 7910 to 7920 feet had a 5-foot recovery of dense lime with a gas odor; from 7920 to 7930 feet it recovered one foot of lime and 6 feet 8 inches of lime with a stain of oil, and from 7930 to 7940 feet recovered 8 feet of lime with an odor of oil. Base of Oolitic lime was found at 7955 feet, and another core was made from 7960 to 7970 feet, consisting of 10 feet of green shale. Smith Estate 1, C SW SW 26-2s-3w, was preparing to acidize. After the plug was drilled, the hole was cored out to 7677 feet and 7-inch casing run.

Carter Oil Company's Carter-Harley 1, C NW NW 19-2s-3w, was drilling below 5058 feet in Hunton lime, topped at 4920 feet. The well had a stain of oil and an odor of gas to 4991 feet, and cored from 4991 to 5001 feet, recovering 7 feet of lime with a show of oil and gas.

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OKLAHOMA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARTER COUNTY—		
Winkler & McQueen, Perkins 1, ne nw sw 3-1s-3w	*	3007
Shell, Johnson 21, sw ne se sw 4-4s-3w (pb 1075)	16	1090
COAL COUNTY—		
Choctaw, Meyers 1, w½ sw se¼ 6-1n-8e	98	4332
Delaney, Sawyer 1, sw se nw 7-1n-8e	12	4524
CREEK COUNTY—		
Sinclair Prairie, Slick 7, c sw sw 3-17n-7e	96	2900
HUGHES COUNTY—		
F. P. Lanahan, Haskett 1, ne nw sw 15-7n-8e	*	3069
Texas, R. Meadors "A" 1-A, c ne ne 8-8n-10e	¶7.6	3195

Company, Well and Location	Init. Prod. Bbls.	Depth
JEFFERSON COUNTY—		
Long, Yingling & Laucke, Seay 26, se sw sw se 3-7s-5w	50	1244
Seay 27, sw sw sw se 3-7s-5w	25	1087
Seay 28, sw sw se sw se 3-7s-5w	100	1253
Bridwell-Continental, W. D. Seay "A" 9, nw nw ne 10-7s-5w	108	1088
KAY COUNTY—		
Wentz Oil, Andrews 4, sw sw ne 8-28n-1w	350	3533
LINCOLN COUNTY—		
Skelly Oil Co., Erwin 1, ne sw sw 35-15n-2e	174	5100
LOGAN COUNTY—		
Champlin Ref. Co., Pfieffer 10, nw se nw 4-19n-2w	220	5091
Incorp. Pet. Prod., Scholpp 4, se sw ne se 32-20n-2w	2910	5001
MUSKOGEE COUNTY—		
J. Rutz, Corbray 15, sw ne ne nw 23-14n-14e	¶1	612
LOGAN COUNTY—		
Texas, W. Roper 1, c w½ sw se 22-15n-1e	*	5542
NOBLE COUNTY—		
Champlin, Gassoway 1, ne ne nw 28-23n-2w (pb 4363)	318	4366
OKFUSKEE COUNTY—		
Bennett, Severs 5, ne nw nw se 35-11n-9e	15	1500
OKMULGEE COUNTY—		
J. E. Dow, Rentie 1-A, nw se nw 13-14n-14e	3	1100
OSAGE COUNTY—		
Pure & Sinclair Prairie, 173, nwc nw ne 5-23n-8e	20	1957
I.T.I.O., 7, nw ne sw sw 13-24n-9e.	*	2410
North Avant Unit, 71, nw se nw 30-24n-12e	26	1685
Sinclair Prairie, 6, nw sw nw 22-25n-6e	50	2736
Sinclair Prairie, 7, sw nw nw 22-25n-6e	20	2747
Bay Oil et al, 2, ne ne nw nw 15-25n-9e	*	2233
Trio Oil Co., 2, se se se sw 22-28n-10e	9	1260
PAYNE COUNTY—		
Mulberry Oil Co., Sharrum 1, c nw nw 5-17n-4e	183	4075
Amerada & Stanolind, Friedman 1, se se se 28-19n-3e (otd 4305)	*	4695
PONTOTOC COUNTY—		
Francis, Province 2, nw nw nw 2-1n-7e	*	1900
Marbla, McBride 1, ne ne sw 10-2n-5e	*	250
Magnolia, F. C. Martin 5, se ne ne 21-2n-7e	1816	3880
Moore, Muse 2, se ne se 33-2n-7e	203	4222
Barbara, Chapman 4, se se sw 25-5n-7e	55	2327
POTTAWATOMIE COUNTY—		
Magnolia, Billington 6, sw nw ne 22-7n-4e (pb 3498)	¶11.2	4270
Atlantic, Billington 1, e½ ne sw 12-9n-4e	120	4229
SEMINOLE COUNTY—		
Louisiana, Reed 6, nw ne ne 18-5n-8e (pb 4147)	291	4178
W. B. Osborn, Harris A-1, nw nw nw 11-6n-5e (pb 2968)	*	3001
Manahan, Williams 3, sw sw ne 22-6n-6e	120	2322
W. C. McBride, Jackson 1, ne ne sw 16-6n-7e	*	1813
Malernee et al, Huddleston 2, se sw ne 32-7n-6e (pb 3990)	405	2994
J. F. Smith, Harryman 1, ne sw sw 33-7n-6e	308	2860
Amerada et al, McGill 2, ne sw sw 35-11n-5e	289	4636
Texas, E. M. Wright 4, se se ne 32-7n-6e (pb 2942)	51	2935
STEPHENS COUNTY—		
Lesh Bros., Smith 11, se ne ne nw 27-1s-5w	3	385
Geo. L. Pace, Houston C-4, nw nw nw sw 2-2s-8w	30	1538
TULSA COUNTY—		
Johnson O&R Co., Baily-Grimes 7, se se sw 31-19n-10e	4	2265

*Failures; †Junked; ¶Million cu. ft. gas.

Wichita.—Completions in Kansas last week totaled 41, 33 oil wells with 41,148 barrels initial, 2 gas wells and 60 dry holes. The 38 locations staked were divided by counties as follows: Barton, 12; Ellis, 4; Cowley and Russell, 3 each; Butler, Rice and Rooks, 2 each; Barber, Grant, Greenwood, Lane, Pratt, Sedgwick, Stafford, Sumner and Woodson, 1 each.

Deep Play to Ordovician in Southern Oklahoma Gaining

By FRANK B. TAYLOR, Staff Writer

COMPLETION of Carter Oil Company et al's Harley Community 1, Ordovician test in the shallow Milroy district of eastern Stephens County, southern Oklahoma, as a commercial producer definitely points the way toward further deep development within the sector.

The completion, located in the center of NE NE 24-2s-4w, flowing from a depth of 8175 feet in an Oolitic lime section of Ordovician, is the second test to find production in the deeper zones. The first well, Carter Oil Company's Ruth Williams 1, SW NE SW 27-2s-3w, in the Fox pool of western Carter County, was completed early in 1936, and flowed from Ordovician above the total depth of 8118 feet, after a fishing job that resulted in a plugback. To the first of September of this year, Ruth Williams had flowed about 225,000 barrels of crude.

The successful completion of Harley Community 1 is the result of six years of study of the area dating from Mid-Kansas Oil & Gas Company (now Ohio Oil Company) and Ramsey Petroleum Company's Culp 6, NW NW NE 6-5n-9w, in the Cement area of Caddo County drilled in 1931. This well was the forerunner of the deeper tests of the area, reaching a depth of 10,079 feet, as the second 10,000-foot test in the world. Culp 6 did not find the bottom of the Pennsylvanian section and was dry at the lower zones.

Area is Deep

This well sponsored the initial investigation into Ordovician occurrence within the Ardmore Basin and along the flank of the Arbuckle Mountains. Wells drilled along a general trend parallel to the overlaid Wichita Mountain continuation into the southeast from granite outcropping northwest of Lawton, found the Arbuckle at comparatively shallow depths and established the fact of a steep dip into the northeast. This dip of strata truncated by erosion or against the buried basement rock of the Wichita range proved the disassociation of the Arbuckle and Wichita ranges, a question of previous debate. In addition, the occurrence of deeply seated folds, suitable to accumulation, were indicated as probable within the syncline separating the two ranges. Wells responsible for proving the Arbuckle at shallow depths were drilled along a trend including Empire, Loco, Healtdon and Bayou, producing from recent sedimentation.

Carter Oil Company's Harrison 1, 28-3n-5w, and Kern 6, 21-3n-5w, both in Knox pool of southeast Grady County, did not completely penetrate the Pennsylvanian section at depths of 8963 and 7041 feet respectively. Stockton 1, important test drilled by Sinclair Prairie Oil Company on a large, partially visible surface feature, found the Ordovician and penetrated the Oil Creek formation to a depth of about 200 feet. At this point, the total depth of 8784 feet was reached. After successive plugging back, the well was bottomed in lower Deese of the Psnnsylvanian from which depth it is producing at this time.

The location of this test is in northwest Love County. The well started in Cretaceous and went into Pennsylvanian at about 1950 feet. An unconformity was picked up in a core taken between 7975 and 7980 feet and between these markers the well went directly from the Pennsylvanian into the middle Simpson of the Ordovician. Various oil shows were encountered in the Ordovician, particularly in Birdseye lime at 8400 to 8700 feet within the McLish. The well swabbed 130 barrels of oil in 24 hours on one test, and later, after a shot and treatment with 10,000 gallons of acid, flowed 10 barrels in one hour and 15 minutes before going dead. Retreatment and continued swabbing failed to make a commercial producer out of the test at the total depth, and orders to plug back were given.

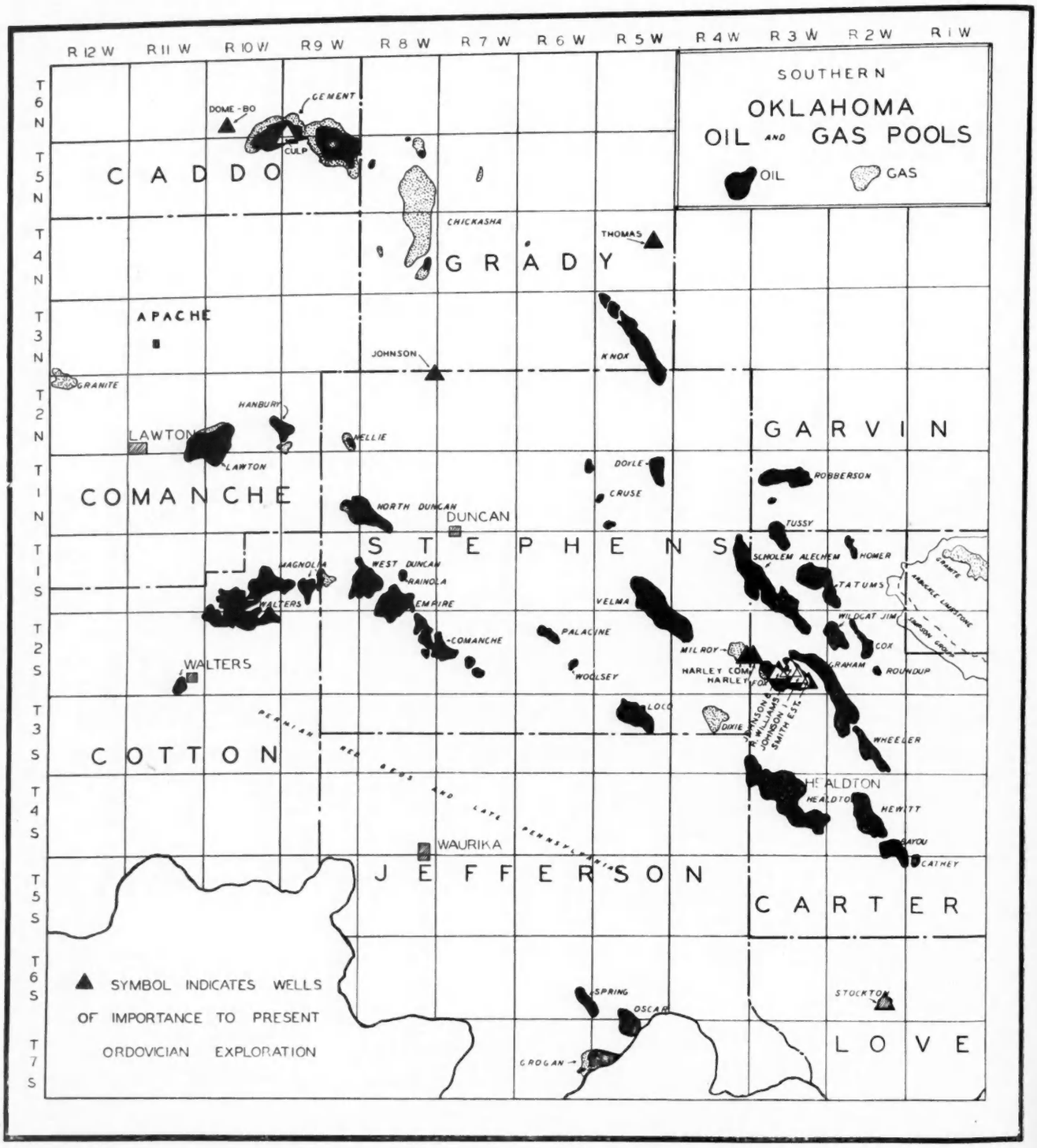
Gulf Oil Corporation's Johnson 8, C SW SW 28-2s-3w, a near offset to the west of Carter Oil Company's Ruth Williams 1, was an Ordovician failure at 7497 feet. Hole was stopped in lime and chert after drilling this material for the last two hundred feet. The well went out of the Red Beds at about 1200 feet and found the top of Hunton lime of Devonian period at 7361 feet. No oil was showing although there was a slight odor of gas. Samples showed oil streaks of no importance. At 7366 to 7370 feet in the same formation, fairly good shows were encountered. At this level the strata was about 60 percent lime and 40 percent chert. At total depth Johnson 8 was shot with 200 quarts and acidized at higher elevation with 2000 gallons but without success.

An abrupt and unexpected dip to the west of Williams 1 was proven by Johnson 8, illustrated through the top of the Hunton reported from the Williams well as being at 4915 as compared with a reported top of 7361 in Johnson 8. In the latter well, the reported top of the Woodford was found at 6778 feet and in the Ruth Williams well at 4360 feet.

The most recent test, Harley Community, found the top of the Woodford at 4010 feet and the top of the Hunton at 4344 feet. This relationship is even higher than Ruth Williams. Gulf Oil Corporation's Smith Estate 1, C SW SW 26-2s-3w, now drilling, is checking high and may indicate the third Ordovician production. At 4600 feet the well was coring in Hunton lime with shows. Carter Oil Company's Harley 1, a recent location, is offsetting Harley Community 1 and is on the same feature. Gulf Oil Corporation's Johnson 1, between the Ruth Williams and Smith Estate, is a drilling well that apparently is checking

high on the Viola. From the trend these wells are showing, the subsurface structure is northwest to southeast. Gulf Oil Corporation's Thomas 1, SW NW NW 14-4n-5w, in southeast Grady County is a drilling well that has found the Marine section of the Pennsylvanian thick at below 6900 feet. This outpost is of direct value in determining the northern extent of the basinal deposits overlying the Ordovician. In northwest Stephens County, Coline Oil Company is drilling below 9200 feet in Johnson 1, SW SE NE 1-2n-8w, the fourth deepest test in Oklahoma. Information on the strata cut in this well is not available although it is only reasonable to suppose that cuttings will be of value in determining the trend of the basin. Indian Territory Illuminating Oil Company et al's Dome-Bo 1, C NE SE 29-6n-10w, a deep test drilling on a projected subsurface trend west of Cement pool, is scheduled to go to 6000 feet but may drill deeper depending upon what is shown by the test.

To the north of Cement, in the Binger area of Caddo County, Denver Producers and Refiner's two tests to depths below 10,000 feet did not find the Ordovician. These tests were located on an outstanding geologic high, but neither well was the producer expected. One test is still producing a small daily volume by gas lift while the other has been plugged. It is believed that neither of these wells reached a geologic depth below what would cor-



Map of shallow and deep production in the area of Southern Oklahoma being explored to the Ordovician. All drilling wells and completed tests having a direct reference to the deeper production are indicated, as well as prominent geological features. Ordovician tests have been centered in the the Fox-Milroy area where two major structural highs have been mapped.

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Decker Tool & Supply Co., Electra, Texas, and Branches.
J. E. Matthews, Ranger, Tex.
Stephen H. McCabe, 508 4th St., San Francisco, Calif.
Viking Automatic Sprinkler Co., 2715 East 12th Street, Los Angeles, Calif.
Herley Supply Co., 3006 Cherry Ave., Long Beach, Calif.
Tubular Sales Co., 811 W. Seventh St. Bldg., Los Angeles, Calif.
Barde Steel Co., Seattle, Wash., and Portland, Ore.
Star Drilling Machine Co., 550 Clinton St., Portland, Ore., and Akron, Ohio.
The Atha Supply Co., Zanesville, Ohio and Mt. Pleasant, Mich.
United Pipe & Supply Corp., Charleston, W. Va., and Branches.
Prichard Supply Co., Mannington, W. Va., and Branches.

respond to the Bartlesville sand of the Cherokee series.

Factors Relative to Development

The chief factors adverselyy affecting Ordovician development are the complexity of geologic features, the depths to possible production, and in this respect the question of justification of the expense of drilling; and the poor porosity found in some of the strata. Regarding the first of the three, the Ordovician structures are as yet largely a matter of conjecture. It appears that anticlinal trends exist in a general northwest-southeast direction, and that numerous highs exist along these major features. Indications are that some of these highs, superimposed possibly, have been eroded following a period lift, and that such normally productive features will be dry.

Evidence is plentiful that structures are probably sharply folded, that dips may be very steep, and that unconformities and faults of great dip may add to an already complicated picture, Johnson 8 of Gulf Oil Corporation cut various strata running between 23 and 48 degrees off vertical. Geophysical investigation has led to the belief that this condition is to be expected in some of the localities. More study, drilling, correlation and seismic work will be made before subsurface trends can be exactly traced although from surface and subsurface control through wells into the more shallow horizons, Ordovician tops can be established.

As to the depths of production, two factors only will tend to limit development. One of these is equipment capable of drilling to depths that may exceed 13,000 or 14,000 feet. The other is the return of sufficient proportions to justify the deep well. In the case of southern Oklahoma, it is possible that structures holding accumulation, if of favorable porosity, could easily produce a tremendous volume of oil through high pressures and wide drainage. Structural closures are great in comparison with more shallow producing areas, and a closure of 400 to 800 feet or more might reasonably be expected. This is due to a secondary folding of sedimentation parallel to the buried granite that may have resulted in paralleling anticlinal trends. It is believed that there occurred a secondary sinking (The Oil Weekly for Jan. 6, 1936) or deformation during Pennsylvanian time.

Better Grade Crude

Crude from the lower strata is generally of higher gravity and more desirable than that being produced from more recent formations. The shallow producing areas contain oil of between 29 and 40 degrees, much of it being black or heavy. In addition to being less desirable than Simpson production, these crudes are more costly to handle. Harley community production tested 57 gravity, only slightly higher than that from Ruth Williams.

Tests into the lower strata in the general area have not found uniform porosity, and the question has been raised as to limitation of production and recovery from deeper formations through this factor alone. This is a problem that can only be solved as more deep tests cut the pays.

KANSAS FIELDS

New Ness County field near Aldrich.

* * *

Cowley County gets new Burbank sand area.

Wichita.—A new pool seemed assured for Ness County and a new Burbank sand area was indicated for Cowley County. Extension of a Stafford County pool and routine operations rounded out progress in other parts of the territory.

Continental Oil Company's Olson 1, SW NW SE 5-18s-25w, 1½ miles northeast of production in the Aldrich pool of Ness County, was the new pool opener. The test topped Mississippi lime at 4301 feet and at 4302 feet, the total depth, had a good show of oil. It was shut down to run and cement casing preparatory to drilling in. The well looks to be proving production along a three-mile northeast-southwest trend through the Aldrich pool.

Indicating a new Burbank sand area for Cowley County, Dickey Oil Company et al's Kansas Gas & Electric Company 1, NEc 22-34s-3e, west of Arkansas City, recovered a saturated core from between 3255 and 3277 feet last week, and set seven-inch casing at 3262 feet. Top of the sand was found at 3255 feet.

Atlantic Refining Company's McNaughton 1, NWc 27-24s-13w, extended the McNaughton sector of the St. John pool of Stafford County one-half mile northwest, swabbing 15 barrels of oil an hour from Siliceous lime at 4091 feet. The St. John pool is 4½ miles southeast of the town of that name.

The old Wenger pool of McPherson County, three miles south of Canton, looks to be in line for a revival as Syndicate Oil & Gas Company et al's Diener 1, SEc NE 33-19s-1w, found gas in a sandy chat between 2905 and 2917 feet, and made 5,000,000 cubic feet. It will be deepened. The well is one-half mile north of the old producing area. The Wenger pool itself was discovered in 1935 by Shell Petroleum Corporation's Wenger 1, NEc 2-20s-1w. It drilled to 3470 feet in Siliceous lime for an initial production of 80 barrels of oil and 210 barrels of water following acidization. The well had earlier pumped about 109 barrels of oil from the Viola lime and went on down to find Wilcox sand at 3405 feet, and was later abandoned.

One-quarter mile northeast of the Pawnee Rock pool in Pawnee County, Mid-Continent Petroleum Corporation's Smith 1, NWc SE 13-20s-16w, was making about 10 barrels of oil and 38,000,000 cubic feet of sour gas. Opened December 14 for 2 hours, the well made 29 barrels of oil the first hour and 10 barrels the second, flowing a four-inch choke. Bottom hole pressure was 325 pounds. Potential was started December 18.

Mid-Continent Petroleum Corporation's Bixby 1, NWc 24-20s-16w, in the same area, was swabbed down late last week after having filled 400 feet with oil in 12 hours. The fill-up occurred after plugs were drilled at 3820 feet, the total depth in Siliceous lime, top of which was reported at 3813 feet. Tanks were moved onto the lease from the Letsch pool of Russell County. It was to be acidized before testing further.

After encountering a small show of oil in the Kansas City lime, Helmerich & Payne et al's Stebbins 1, NWc SE 7-13s-20w, a wildcat west of Ellis in that county, continued drilling below 3835 feet in conglomerate. The formation was found to be thicker than was expected.

Four miles south of production in the Burrton pool of Reno County, West gate-Greenland Oil Company et al's Popp 1, SWc NE 7-25s-4w, had a show of oil in the top of the Viola lime at 3900 feet, and was preparing to run casing for a test. The test is an attempt to define the southern producing limits of the pool.

Large Ainsworth Well

One of the largest producers in the Ainsworth pool of Barton County was completed last week. It was Stanolind Oil & Gas Company's Redetzke 2, NWc SE 26-16s-13w, reported an official potential of 1643 barrels of oil from Siliceous lime at 3411 feet. It was acidized. The test is on the west side of the Studer extension of the pool.

North offset to the discovery producer in the Hoisington pool of Barton County, Continental Oil Company's Ford 1, SWc NW 10-17s-13w, filled 2000 feet with oil in five hours, after plugs were drilled at 3349 feet in Siliceous lime. Tanks were being erected preparatory to taking potential. The well looks to be much larger than the pool opener which was completed for 255 barrels of oil, natural.

Pryor & Lockhart's Pickens Ranch 1, CWL E½ SW 34-30s-14w, northwest of the discovery producer in the Lake City pool of Barber County, was drilling below 3500 feet after a small show of oil and gas was had between 3285 and 3325 feet. The discovery producer was their Gant 1, a producer from the Viola lime.

Kansan Oil Corporation's Mease 1, NE SE SE 27-30s-11w, eight miles north of production in the Whelan pool of Barber County, was drilling

ATLAS SUPPLY CO.

GENERAL OFFICES
MUSKOGEE, OKLA.

BRANCHES LOCATED AT PRINCIPAL
POINTS IN MID-CONTINENT

below 4718 feet with nothing showing. It had top of the Viola lime at 4693 feet. The test reported a saturated core between 4442 and 4444 feet several weeks ago, but was drilled ahead.

KANSAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BARTON COUNTY—		
Shell, Luerman 1, sw nw sw 18-16s-13w	2678	3374
Stanolind, L. Kultgen 1, sw sw ne 26-16s-13w	54	3429
Sinclair Prairie, Grossardt 1, ne ne sw 10-17s-11w	294	3320
Mid-Continent, Schmidt 7, nw nw sw 36-19s-11w	385	3309
Stanolind, Wm. Panning 6, ne se se 2-20s-11w	2032	3279
Stanolind, A. Schartz 6, sw sw nw 2-20s-11w	1189	3302
Kowalsky 7, ne se ne 11-20s-11w	1811	3288
F. Panning 7, se ne nw 11-20s-11w	1654	3287
Stuckemann 2, nw nw se 11-20s-11w	1744	3295
Magnolia, Anna Roetzel 1, nw nw ne 25-20s-11w	1859	3262
BUTLER COUNTY—		
Saco, Barnhill 1, se sw ne 12-27s-7e	*	2200
Stewart & Gross, Piper 2, ne se nw 13-29s-3w (otd 1636)	*	2315
CHAUTAUQUA COUNTY—		
A. Brewer Shepard 1, ne ne se 20-32s-4e	*	3061
ELLIS COUNTY—		
Sinclair Prairie, Cress 3, nw se ne 13-11s-17w	410	3384
Blackwell O&G, Richmond 2, se se se 15-11s-17w	1693	3410
Cities Service, Bemis 13, se nw se 21-11s-17w	2381	3374
Ryan-Consolidated, Bemis "C" 3, ne se sw 21-11s-17w	3073	3411
Magnolia, Johansen 6, nw se ne 22-11s-17w	1708	3407
Cities Service, Hall "B"2, sw nw nw 26-11s-17w	2773	3396
Wolf Creek, Bemis "B" 1, nw nw se 4-12s-17w	*	3633
ELLSWORTH COUNTY—		
Magnolia, Zine 1, sw nw sw 32-17s-10w	225	3024
GRANT COUNTY—		
United Prod., Taylor 1, ne ne ne sw 2-30s-35w	¶4.5	2720
Panhandle-Eastern, Bank 1, c of sec 16-30s-35w	¶4	2765
GREENWOOD COUNTY—		
A. R. McGinnis, Jackson 2, nw se nw 25-25s-8e	20	2429
PRATT COUNTY—		
Penn Drlg. et al, Holland Est. 1, sw nw se 6-26s-12w	*	4140
RENO COUNTY—		
Drillers Gas Co., Showalter 1, nw nw nw 34-24s-5w	94	3459
RICE COUNTY—		
Continental, Gum 2, sw nw se 34-19s-10w	1116	3303
Rosespring Drlg., Mantel 2, sw ne ne 18-20s-10w	1165	3318
Stearns & Walker et al, Oden 1, sw sw nw 6-21s-7w	1089	3347
ROOKS COUNTY—		
Kruger et al, Rathburn 1, se nw sw 14-9s-16w (otd 3395)	50	3590
RUSSELL COUNTY—		
Shields et al, Giese 1, se se ne 28-14s-13w	2145	2915
Darby, Dumler "C" 2, sw sw ne 11-14s-15w	1858	3072
J. C. Shaffer, Cramm 4, ne nw se 11-14s-15w	1204	3076
Transwestern, Wm. Polcyn 12, se ne sw 11-14s-15w	1209	3263
Coralena, G. Sellens 4, sw sw se 20-15s-13w	1013	3299
SEDGWICK COUNTY—		
Prunty Prod. et al, E. Black "A" 3, sw nw nw 16-25s-1e	1296	3328
STAFFORD COUNTY—		
Tom Palmer, Fair 1, se ne sw 10-22s-11w	*	3645
Stanolind, Komarek 14, nw se ne 30-22s-11w	1496	3566
Stanolind et al, Heyen "A" 4, se ne nw 31-22s-11w	1360	3560
WOODSON COUNTY—		
Sheedy, Enloe 4, nw sw ne 28-25s-14e	50	1490
B. & B. Oil Co., Corkery 3, ne nw nw 29-25s-14e	20	1408

*Failures; †Junked; ¶Million cu. ft. gas.

ILLINOIS DEVELOPMENTS

Jasper County wildcat has production promise.

★ ★ ★

Decker Township, Richland County, getting busy.

Olney, Ill.—Jasper County gave promise last week of entering the Illinois oil production picture when Bird & Hoffman's King 1 wildcat, Section 20-28n-10e, two miles northeast of Rose Hill, cored 14 feet of what appears to be a satisfactory saturation at 2650 feet. The sand is believed to be the Weiler, which is found at approximately the same depth in the Clay City field of Clay County, to the southwest. The well is given a fifty-fifty chance of gaining commercial production. Geologists of Shell Petroleum Corporation and The Ohio Oil Company were on hand when the core was taken. Both companies have considerable acreage under lease near the wildcat.

Carter Oil Company apparently has opened a new pool with Rolla Tate 1, Section 10-1s-2e, Rome Township, Jefferson County, but early predictions that the wildcat would make 100 barrels a day were shaken when salt water intruded last week. Operators still hope, however, to make it a commercial producer.

In Fayette County, Benedum & Trees Oil Company's Van Zandt 1, Section 24-6n-1w, is drilling at 2950 feet after an earier saturation at 2839 feet failed to indicate commercial production.

In Decker Township, Richland County, opened two weeks ago by Mammoth Oil & Refining Company's Brace-McCauley 1, Section 28-3n-9e, there are indications of rapid development. The company is erecting derrick for a southern offset on the A. W. Bell farm. Max Pray et al are rigging up on the Harold Runyon tract recently acquired from Tom Bery, and Ed Morris is digging pits on the Fred Allison farm. Meanwhile, the Brace-McCauley is being cleaned out with cable tools. The well swabbed 200 barrels of oil in less than 9 hours.

ILLINOIS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CLAY COUNTY—		
Pure, Leon Clark 1	200	3037
Chaffin 6	50	3029
Scrugham 3	*	3027
Gulf, Laughton 1	*	3234
CLINTON COUNTY—		
Cotton et al, Hester 1	*	1724
LAWRENCE COUNTY—		
Strauss et al, Robeson 1	*	3073
MARION COUNTY—		
J. Staley, Maud Ellis 1	25	1450
SHELBY COUNTY—		
English et al, McClory 1	*	2384
WAYNE COUNTY—		
Benedum-Trees, Rosa Yates 1	*	3272
Craig 1	*	3280
WHITE COUNTY—		
Johnson & Cozart, Poorman 1	*	3405

*Failures; †Junked; ¶Million cu. ft. gas.

Noble Townsite drilling continues at a rapid pace, all sections of the village having been proved productive. Thirty-two derricks tower over the village, opened only two months ago by Southern Illinois Petroleum Company's Allar d1. Noble is in western Richland County.

EASTERN FIELDS

Completions

OHIO

Company, Well and Location	Init. Prod. Bbls.	Depth
ATHENS COUNTY—		
A. D. Townsend, Fred Varner 2	¶.90	1240
BELMONT COUNTY—		
Natural Gas Co. of W. Va., McFetridge 1	¶.15	721
Union G. & O. Corp., Kurth 2	*	1703
CUYAHOGA COUNTY—		
Walkers et al, Carey 5	*	2513
GUERNSEY COUNTY—		
Harry Warne, Patterson 1	*	1128
Geo. Karnodle, Lanning 2	*	1250
HURON COUNTY—		
White et al, Arting 1	*	4270
KNOX COUNTY—		
Upham Gas Co., Schwartz 1	20	3115
Millwood Sand Co., Lepley 4	*	660
LICKING COUNTY—		
E. J. Edwards, Nymola 1	*	725
MEDINA COUNTY—		
E. R. Edson & Son, Packard 35	2	389
W. H. Wideman 39	½	536
MEIGS COUNTY—		
Simpson et al, Jividen 1	2	1885
J. I. Clark, Bailey 1	*	....
MONROE COUNTY—		
Gold Crown O&G Co., Lucas 1	¶.13	1375
MORGAN COUNTY—		
Hummel et al, Hummel 8	½	250
W. S. Harris, Fee 17	¶.20	1000
MUSKINGUM COUNTY—		
Wittmer Gas Co., McAllister 1	¶.23	3770
Hopewell G&F Co., Swingle 2	*	4064
PERRY COUNTY—		
Chartiers Oil Co., Hocking Valley 217	45	3470
Corning Prod. Co., Sunday Creek Coal Co.	¶.70	3660
Preston Oil Co., Marshall 5	*	3650
PUTNAM COUNTY—		
Morton Stewart Pet. Corp., Williams 5	100	1380
SENECA COUNTY—		
Miner et al, Martin 6	¶	1499
SUMMIT COUNTY—		
Pawnee Corp., County 3	*	4119
TUSCARAWAS COUNTY—		
Ohio F. G. Co., Johnson 1	*	4286
WASHINGTON COUNTY—		
Myers & Burkhart, Riemenschneider Heirs 1	30	....
Schwartz & Dunn, Bowman 1	1	360
H. B. Walker et al, Sheets 46	½	153
Wickens et al, Wickens 24	*	1255

WEST VIRGINIA

BRAXTON COUNTY—		
Pittsburgh & W. Va. Gas Co., Ramsey & Bender 7602	¶.10	2006
CABEL COUNTY—		
Merritts Creek Gas Co., Acres 13	¶.90	2870
GILMER COUNTY—		
Phil D. Phillips, Fetty	¶.55	1421
Oren R. Bush, McQuain	¶.24	1582
HANCOCK COUNTY—		
R. J. Braden Co., Brenneman 22	2	1110
KANAWHA COUNTY—		
South Penn Oil Co., Beane 1	¶14.00	4761
United Fuel Gas Co., Shirkey 4760	¶9.00	4825
Mullins Gas Co., Dawley 1	¶.43	4946
Glenn O&G Co., Williams	¶.20	4467
Pure, Slaughters Creek 6	*	5193
Godfrey L. Cabot, Inc., Roane Land Co.	*	4198
MARSHALL COUNTY—		
Cameron H&L Co., Reese 2	¶.10	2920
MINGO COUNTY—		
Huntington Oklahoma Gas Co., Brewer 6	¶.13	3329
RITCHIE COUNTY—		
McBurney et al, Darnell 3	10	1670
ROANE COUNTY—		
Big Creek Oil Co., Shaffer Hrs. 2	10	1660
TYLER COUNTY—		
Morgan Bros., Thorn 1	*	1600
WOOD COUNTY—		
South Penn Oil Co., Williamson 15	3	2257

*Failures; †Junked; ¶Million cu. ft. gas.

EASTERN FIELDS

Second Music Mountain gusher good as first.

Pittsburgh. — Niagara Oil Company reports drilling in of its second Sliverville test at Music Mountain, 9 miles south of Bradford on December 14 as a gusher which is believed to be as good as the company's first well in this area, brought in August 24 as the first gusher in the Pensylvania Grade crude region in 15 years. The new well is being deepened into the Sliverville sand below 1500 feet and while drilling was in progress it flowed 25 barrels during 15 minutes.

This company made Eastern Fields history with its first test in the area over three months ago when a strike first estimated by drlilers to be in excess of 240 barrels an hour was unexpectedly made at 1629 feet. The well, however, settled to 15 barrels an hour a week later. Production is from a stray sand and the well is outside the recognized limits of the Bradford field. Late in October, Minard Run Oil Company, at a location 1200 feet south of the Niagara Company's first well, made a strike at 1402 feet which blew gas and oil over the top of the drilling mast three times before finally hooked up to tanks. A previous try by the Minard company resulted in a gasser.

J. B. Myers, H. E. Milliken, Victory Hoakinson et al (Rutan Oil Company) obtained production estimated between 125 and 150 barrels a day from the 930-foot sand with C. T. Harvey 4, in the historic Harvey oil field, Center Township, Greene County, Pennsylvania. Since the field was revived about two years ago, 12 successful completions have been made, the largest being the J. B. Orndorff 2, which had an initial of 500 barrels a day when drilled in last summer. Harvey 4 is about 1500 feet from the original Harvey test drilled in some 44 years ago. Charles Mong, William W. Tayor, B. B. Daily, Morgan Henderson et al will drill in J. L. Metz 2 in the same township this week.

In the New York-Pennsylvania Oriskany gas area, Belmont Quadrangle Drilling Company's wildcat on Lot 487, Pleasant Township, Warren County, Pennsylvania, was completed as a failure. It passed through the Oriskany at 4294-4311 feet, finding only a show of salt water, and was bottomed at 4370 feet.

Producers Power and Light Company had better luck with G. M. Whitman, Harrison Township, Potter County, also on the Pennsylvania side, which topped the Oriskany sand at 5056 feet and had an initial open flow of 14 million cubic feet a day when bottomed at 5067 feet.

Company, Well and Location	Init. Prod. Bbls.	Depth
KENTUCKY		
DAVIESS COUNTY—		
Rex-Pyramid Oil Co., Cooper 4	¶.70	625
GRAYSON COUNTY—		
A. V. Smith et al, Green Bros. 5	¶1.11	386
HANCOCK COUNTY—		
J. C. Ellis, Richards 22	50	270
H. D. Fuqua 10	15	450
LEE COUNTY—		
McCoun & Wissing, Combs 17	200	1152
C. E. Townsend, Combs 13	200	990
McLEAN COUNTY—		
South Penn Oil Co., Kirtley	325	1435
Ellis & Huff, Yates 1	50	970
Cumberland Pet. Co., Nall 8	*	1628
J. C. Mayers et al, Brown 2	*	1340
OHIO COUNTY—		
A. Schaffer et al, Russell 3	4	520
Jess Ellis et al, Westerfield 11	4	615
E. DeHart et al, Kelly Hrs. 3	*	650
WEBSTER COUNTY—		
Powell & Garrison, Robards 3	¶.40	830
PENNSYLVANIA		
BUTLER COUNTY—		
Walters & Co., Hearst 1	5	....
GREENE COUNTY—		
Equitable Gas Co., Yeager 1	.74	2779
Carnegie Natural Gas Co., Connor 2	.12	984
Convex Glass Co., Van Voorhis 1	.10	2618
WASHINGTON COUNTY—		
Keystone Gas Co., Beabout 1	*	2881

*Failures; †Junked; ¶Million cu. ft. gas.

NEW MEXICO

North Monument well responds to acid

Hobbs, New Mexico. — Continental Oil Company's State 1-A-7, C NE SE 7-19s-37e, offset to the northern most producer in the Monument field, was flowing 15 barrels oil hourly last midweek after failing previously to respond to two nitro shots and acid treatment at 4046 feet. Production responded to treatment of lime at 3845-4046 feet with 5000 gallons of acid solution. Due to tight lime conditions the acid pumps built up a maximum pressure of 1400 pounds on the casing and 1150 pounds on the tubing before the formation would take the chemicals. This well is bottomed at 330 feet subsea, and is near the water level for the area.

Skelly Oil Company's State-Mon 2, C NE SE 13-19s-36e, also in the north portion of Monument field, tested dry at 4050 feet, and again at 4062 feet, or 343 feet below sea level. At the latter depth the well was treated with 2000 gallons of acid, and flowed 30 barrels fluid hourly, averaging 20 percent water, for 7 hours then required agitation. Pumping equipment will be installed. The Texas Company's American National 1, C NE NW 18-19s-37e, cored to 4040 feet, or 325 feet sub-sea, and was running tubing to test.

Lea County accounted for 6 new tests the past week, including two for the north portion of the Cooper field, where development has been revived by a recent extension producer. Barnsdall Oil Company has started operations on J. W. Whitten 1, SE SE SE 33-23s-36e, west offset to the outpost, and Atlantic Refining Company-Kirby Petroleum Company's Davis 1, SW NW SW 34-23s-36e has rigged up. Two States Oil Company has made location for Moskin 1, C NW NW 5-22s-37e, and Moskin 2, C NE NE 6-22s-36e, offsets in the Penrose field. Texas Pacific Coal & Oil Company's State 7-A, Account 2, C NW NW 8-22s-36e, is a new project for the south portion of the Eunice field. Southwest edge of the Monument area gained a new project from Continental Oil Company et al's Reed 1-B-23, NE NE NE 23-20s-36e. On an adjacent lease, the latters' Reed 2-B-24, C NE SW 24-20s-36e, flowed 7 barrels hourly natural on 8-hour completion gauge through 39/64-inch choke from lime at 3800-59 feet. The oil tested 34 gravity.

Three projects for the Vacuum lime area, Lea County, made good progress the past week. Skelly Oil Company's State 1-J, east outpost, was drilling at 3895 feet, and The Texas Company's State 1-M, offset to its south extension producer, had progressed to 2280 feet. Magnolia Petroleum Company's State-Bridges 3, intermediate test, was drilling at 1560 feet.

NEW MEXICO
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
EDDY COUNTY—		
Nash & Windfohr, Jackson 4-A, nec 13-17s-30e	100	3541
LEA COUNTY (Eunice)—		
Humble, Fopeano 3, c sw sw 25-20s-36e	1600	3855
Mid-Continent, Boren 2, c se ne 20-22s-36e	¶3 & 20	3852
LEA COUNTY (Hobbs)—		
Two States-Southern Pet. Explo., Inc., Morris 1, se 21-18s-38e	2545	4244
LEA COUNTY (Langlie)—		
Plains Prod. Co., Stuart 1, ne sw sw 10-25s-37e	200	3420
Stanolind, P. J. Langlie 2-A, c nw sw 9-25s-37e	250	3463
LEA COUNTY (Lynn)—		
Gulf, State-Janda 1-E, ne nw ne 21-23s-36e	2500	3710
LEA COUNTY (Maljamar)—		
Williams & Cockburn, Miller 3, c sw sw 23-17s-32e	25	3890
LEA COUNTY (Mattix)—		
Repollo, R. W. Cowden 1, ne ne ne 31-23s-37e	55	3850
LEA COUNTY (Skelly)—		
Samedan Oil Corp., Hughes 4, c nw se 10-23s-37e	95	3625

*Failures; †Junked; ¶Million cu. ft. gas.

Program committee named for spring meet of Eastern A.P.I.

T. H. Myers, Carnegie Natural Gas Company, Pittsburgh; D. T. Ring, The Ohio Fuel Gas Company, Columbus, Ohio, and George Wittmer, III, Wittmer Oil & Gas Company, Pittsburgh, constitute the program committee for the spring meeting of the Eastern District, Division of Production, American Petroleum Institute, to be held in the William Penn hotel, Pittsburgh, Pennsylvania, April 28 and 29, according to word received from F. E. Eckert, district chairman.

Suggestions on authors and topics should be sent to Eckert at 28 Kennedy Street, Bradford, Pennsylvania.

G. HARRISON SMITH and **R. V. LeSUEUR** were re-elected president and vice president, respectively, when directors of International Petroleum Company, Ltd., held their annual meeting at Sarnia, Ontario, last week. The directors' meeting followed the annual meeting of shareholders at which the following were returned to the directorate: C. A. Eames, F. B. Bimel, O. B. Hopkins, C. S. Wilcox, B. A. Myers, Montagu Piesse, J. W. Flanagan, Mr. Smith and Mr. LeSueur.

WEST TEXAS FIELDS

Third big well in Jordan east extension.

* * *

Wasson is extended 1¾ miles to southeast.

* * *

Outpost 1¼ miles northeast of Wasson looks good.

San Angelo.— Completion of the third big producer for the east extension of the Jordan field, Crane County, was under way last week. Preliminary test given The Texas Company's University 2-D, SEc NW Section 13, Block 35, indicated a large flow as the well gauged 124 barrels of 34 gravity oil in 30 minutes against 150 pounds back pressure on casing with drill pipe in the hole. It was drilled to 3560 feet, or 752 feet sub sea, and is on a line between the previous big completions. Drill pipe will be removed by snubbing crew and tubing installed to complete.

Another important extension for the Yoakum County section of the Wasson field was pending while American Liberty Oil Company's (T. L. Wynne, trustee) Thomas 1, near NWc of South 340 acres of Section 864, Block G, proved a large area with flowing production. The latter gauged 210 barrels of oil after using 1000 gallons of acid at 5026 feet, or 1434 feet sub sea. It is about 1¾ miles southeast of the nearest production, and shortens the interval between wells along the east flank of the structure in the above county with those in Gaines County. Shell Petroleum Corporation's Baumgart 1, SW ¼ Section 828, about 1¼ miles northeast of the above outpost, is making a production test through tubing at 5000 feet, or 1413 feet sub sea, after coring favorable saturation. It is lower on structure, having logged first solid lime at 4470 feet.

Continental Oil Company and Amon G. Carter cemented 5½-inch pipe near the 4740-foot level on 3 tests drilled on their A. L. Wasson discovery site in the Gaines County portion of the Wasson field. These were required by offsets, and are slated to be completed before the close of the year. The field was discovered in June, and has 18 flowing and pumping wells, with prospects of a total of 25 before January 1. Continental Oil Company's Jones 2, northwestern Gaines County wildcat was abandoned at 4975 feet.

Humble Oil & Refining Company has abandoned its 3-well drilling program on a block of short term leases, centering about 8 miles southwest of Fort Stockton, Pecos County, after failing to make a commercial pumper from its first prospect. This company's Belding-Lunger 1, Section 99, Block OW, gave promise of opening a new low gravity pool from sandy-lime topped at 2450 feet. Hole was deepened to flowing sulphur water at 2718 feet, and when acidized at plugged back depth of 2622 feet pumped 25 barrels of 16.6 gravity oil the first day and 4 barrels oil the second day, with a large percentage of water. Failure of this prospect caused the company to halt work on Pryor 1, an east offset at 201 feet, and H. H. Butz 1 at 730 feet. D. W. Francis et al's Westermann-Hayden 1, Block 166, Rubian Phares Survey, about 3 miles southwest of Fort Stockton, halted operations at 2942 feet with 3,000,000 feet of dry and sweet gas showing from lime at 2903-08 feet. Larger flow of gas from the 2800-foot level was cased off.

Sand Hills

Ordovician lime operations in the Sand Hills field, Crane County, have been resumed by Gulf Oil Corporation after issuing plugging orders for Waddell et al 6, C NE SW Section 4, which flowed sulphur water from Ellenberger at 6071-6126 feet. Hole was plugged back to 6092 feet and acidized twice with negative results. Rig has been moved to Waddell et al 7, C SW SE Section 4, or ¼ mile south of the company's big producer in the Ellenberger. Wilcox Oil & Gas Company's McKnight 1, deep prospect for northwestern Crane County, recovered lost drill pipe at 6177 feet, and resumed drilling late last week.

Development of the Holt land, centering upon the Ector-Andrews County line and due north of the North Cowden field, is to be resumed. Olney S. Black et al contracted to drill Holt 1, C NW NW Section D, PSL Survey, Block 43, Andrews County, in return for lease on the NW and SE of Section D contributed by Sun Oil Company and Atlantic Refining Company, joint owners of a large lease block in the area. The new project is 2 miles northeast of a small producer in the 4500-foot lime.

BERTE R. HAIGH, geologist for the University of Texas lands division, at a monthly technical meeting of the Oklahoma City Geological Society, discussed the importance of the West Texas Permian basin in the southwestern oil industry. He reviewed the geology and development of the big area.

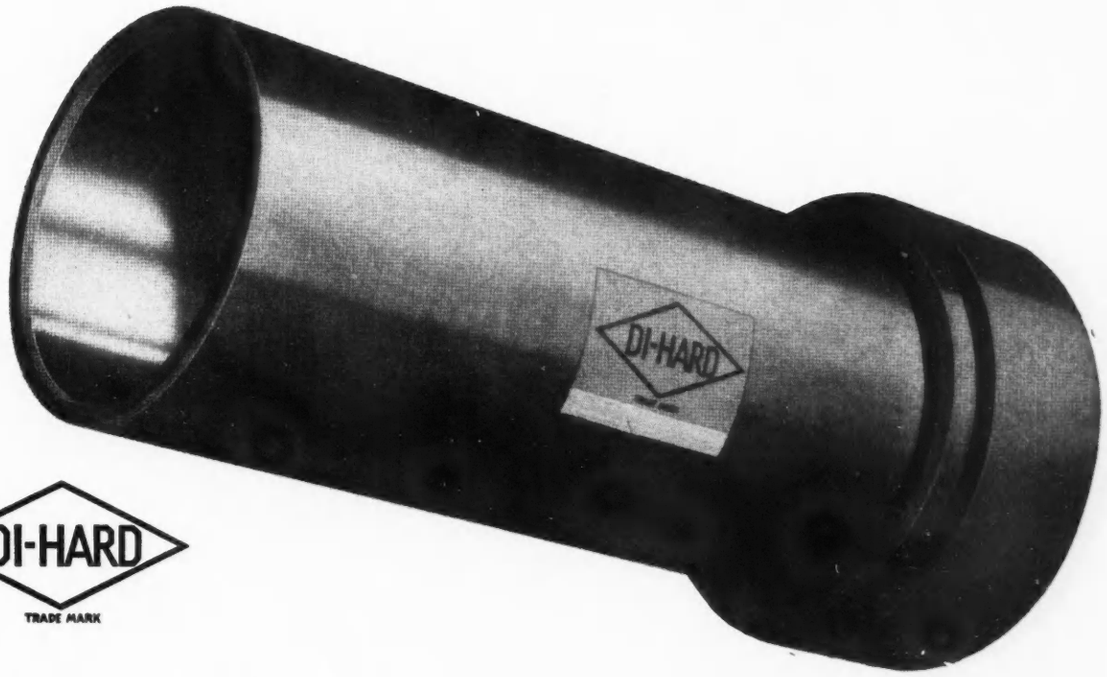
WEST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CRANE COUNTY (Gulf-McElroy)—		
Gulf, McElroy 164	197	3012
CRANE COUNTY (McCamey)—		
Mead Prod. Co., Cowden-Conoco 2-D	318	2575
Quality Prod. Co., Gibbs 1	942	2325
CRANE COUNTY (Sand Hill)—		
Gulf and Cranfill Bros., Tubb 14	198	4420
Gulf, Waddell et al 6	*	6126
ECTOR COUNTY (Foster)—		
Cities Service, Bagley 4	678	4266
Stanolind, Cowden 6-B	1781	4197
Sunray Oil Co.-York & Harper, Bagley 1	427	4360
Superior Oil Corp., E. F. Cowden 1	1054	4280
T. P. Coal & Oil Co., Foster 2	670	4200
ECTOR COUNTY (Goldsmith)—		
Amos Beatty, Bowles & Borsodi, T. P. Land Trust 1	95	4280
Gulf, Goldsmith 53	2992	4220
Humble, W. F. Cowden 3-B	1453	4190
Ohio, Cummins 2	1203	4201
Shell, Slator 3	735	4278
T. P. Coal & Oil Co., Scharbauer 11	1317	4275
ECTOR COUNTY (Harper)—		
Barnsdall, E. F. Cowden 1	613	4250
ECTOR COUNTY (Judkins)—		
Fogelson et al, University 2-A	535	3721
Ohio, University 3	41	3660
Rushwold Oil Co., Connell-Conoco 1-B	472	3650
ECTOR COUNTY (North Cowden)—		
Stanolind, Cowden 64	564	4226
Cowden 68	486	4292
Roberts 8	733	4330
FISHER COUNTY (Rotan)—		
Gen'l Crude Oil Co., Morrow 1	763	3498
Sunray Oil Co., Robinson 5	656	3563
Robinson 6	874	3520
GAINES COUNTY (Wasson)—		
A. G. Carter et al, Brand 2	*	5014
GAINES COUNTY (Wildcat)—		
Continental, Jones 2	*	4975
Mitchell & Sullivan, Riley-Shell 1	*	5302
HOWARD COUNTY—		
Merrick & Bristow, Roberts 5	250	2973
Noble Drl. Co., Chalk 2	1257	3007
Standard (Texas), Dodge 10	183	2809
KING COUNTY—		
H. F. Wilcox O&G Co., Ross 1	*	4882
LOVING COUNTY (Mason)—		
Michigan O&G Corp., Kyle 4	605	3938
PECOS COUNTY (Masterson)—		
Abell Bros. et al, Fromme-Standard 1	*	1526
UPTON COUNTY (Gulf-McElroy)—		
Gulf, McElroy 165	178	3005
UPTON COUNTY (McCamey)—		
Anderson Oil Co., Elder 3	863	2238
Brown-Hancock-Hines Oil Corp., Baker-Conoco 2-D	983	2217
Cardinal Oil Co., Wooley-Shell 4	243	2173
Wooley-Shell 5	663	2156
Choate & Hogan, Baker-Conoco 6	843	2326
John W. Emch et al, E. F. Lyon 5	403	2288
A. R. Eppenauer et al, J. F. Lane-Pure 6-A	701	2135
Shell, Rogers 2	325	2380
WARD COUNTY—		
Gulf, Estes 64	442	2640
Estes 65	1064	2670
Estes 67	574	2670
Hutchings 91	2106	2730
O'Brien 88	676	2770
Humble, Richter 22	530	2930
Richter 24	818	2610
Lynch et al, Himmell 8-A	227	2412
Proctor et al, Allen 4	42	2255
Provine & O'Quinn, J. B. Tubb 2	96	2210
Sidwell & Myers, Cannon-Stanolind 4	75	2352
WINKLER COUNTY (Halley)—		
Skelly, Halley 24	1021	2896
WINKLER COUNTY (Henderson)—		
Skelly, Daugherty 4-B	2000	3056
WINKLER COUNTY (Kermit)—		
Gulf, Clapp 22	201	3090
Magnolia, Walton 116	411	2910
Joe C. Maxwell Gar-Tex O&G Co. 6	486	3086
WINKLER COUNTY (Keystone)—		
Gulf, Keystone 21	370	3455
Keystone 22	345	3510
YOAKUM COUNTY (Wasson)—		
Toddie L. Wynne, Tr. (American Liberty Oil Co.), C. A. Thomas 1	210	5026
YOAKUM COUNTY (Wildcat)—		
Standard (Texas), Sawyer 1	*	5403
Pete Wiggins, Jr. et al, Bartlett 1	*	5508

*Failures; †Junked; ¶Million cu. ft. gas.

Still going strong

AFTER A YEAR'S SERVICE



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DI-HARD Liners have a 900 Monotron Diamond Brinell hardness. They outwear heat treated steel liners many times (proved by revolution counters on field tests). They reduce piston replacements in proportion to the increase in wear-life of liners. Liners that won't score are bound to save pistons. They are file hard—even cut glass.

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BRANCH STORES—Barbers Hill, Gladewater, Talco, Bay City, Victoria, Pierce and Corpus Christi, Texas. Lake Charles, New Iberia, and Rodessa, Louisiana.

SALES OFFICES—Tulsa, Oklahoma; Dallas, Texas; Shreveport, Louisiana.

NORTH TEXAS FIELDS

Weather delays important K-M-A completions.

* * *

Deep exploration spreading in Wichita County.

Wichita Falls. — Inclement weather throughout the past week prevented production tests being made of several important prospective extensions for the Wichita County portion of the K-M-A field. King Oil Company's Waggoner Bros.-Gulf 1, Lot 8, M. A. Willis Survey A-548, about 7000 feet northeast of the most northwesterly producer, showed favorably in coring sand, with 3 thin shale breaks at 3761-84 feet, having logged top of lime at 3652 feet. Sinclair Prairie Oil Company purchased 3 tracts, aggregating about 500 acres, situated 1½ to 3 miles north and west of the above outpost for a reported consideration of $47,130 cash and an equal amount due from production. Heretofore, Magnolia Petroleum Company was the only major to acquire additional lease protection since the field attained the spotlight.

Consolidated Oil Company et al's W. P. Ferguson 1, W. H. Spillers Survey, A-257, one mile west of the biggest producer in the field, flowed 328 barrels of oil initial through casing, and later 220 barrels in 16 hours through open tubing from sand at 3760 feet. This well flowed 50 barrels hourly at 3752 feet, and failed to sustain its output after taking in 8 feet of additional sand.

Wheeler Nazro, Houston, et al have started operations on W. P. Ferguson 1, southeast corner of 82-acre lease and Lot 3, F. Peterswick Survey, A-243, Archer County. It is a north offset to E. C. Norwood et al's Ferguson 1, which recently extended the K-M-A deep production 6800 feet to the south.

J. T. Harrell and E. H. Eddleman's First National Company-Gulf 1, SEc N½ Lot 2, Block 26, located in the older section of the field, flowed 60 barrels hourly average for 12 hours after 400-quart nitro shot in broken Strawn 3772-3855 feet. The last 33 feet of hole logged sand with sandy-lime breaks.

Small Drilling Sites

Small drilling sites are making their appearance, thereby creating dense drilling in their immediate areas. Wichita Cotton Oil Company's fee 1, located on 466-foot square tract, southwest corner of Lot 2, Block 1, F. Peterswick Survey, A-243, near Jack Kadane et al's big producer, is the first test on a small tract to reach the Strawn zone. Broken sandy-lime was logged at 3628-40 feet, followed by saturated sand-lime at 3676-80 feet and sand at 3680-84 feet, with an elevation of 1026 feet. Pipe was cemented at 3661 feet to complete. Kadane et al have made 3 locations offsetting this test. C. P. Sheldon et al made location for a test on 2.9-acre strip on the east edge of Block 38, P. Castleman Survey, A-35. Haberle & Thornton are drilling on a 2½-acre lease, W. H. Spillers Survey, A-258.

The Texas Company is the second major to start operations in the deep area, having made location for First National Company (Kemp-Allen) 23, southeast corner of Lot 8, Block 26, situated in the older section of the field. Humble Oil & Refining Company previously announced its first project. Both concerns held this acreage through shallow production.

Deep exploratory work is spreading to other sections of Wichita County. Tom B. Medders et al contracted to drill a 4000-foot test as part consideration for a 2000-acre block, centering around Section 32, H&GN Ry. Survey, A-774, about 5 miles northwest of Iowa Park and 7 miles northeast of nearest deep production. G. W. Cooper et al's John Hirschi 1, David Cowan Survey A-43, about 5 miles west and 1 mile north of Clara, was drilling at 1150 feet, and is to be carried to the 3250-foot level. J. H. Baker et al have assembled a 2200-acre block, centering upon the M. Carbajal Survey, A-44, about 1 mile north of Wichita Falls, and is obligated to make a 4500-foot test. This block includes old failures drilled to 2931 feet and 3142 feet.

Strawn zone test for the Johnson Ranch pool, western Foard County, may be undertaken by The Texas Company through the deepening of its Les K. Johnson 14, NE¼ of S. P. Ry. Section 37, Block L, after failing to make a producer in the Canyon, regular oil zone, at the 3600-foot level. Hole bailed dry at 3765 feet, and drilling was resumed.

Northern Archer County and Wil-

Summary of K-M-A Operations, Wichita and Archer Counties

Operator—	Completed Wells	Testing	Drilling	Rigs & Dks.	Locations
Bishop Oil Co.	—	—	—	—	1
Blackwell Oil & Gas Co.	—	—	1	—	—
W. H. Bohner et al.	—	—	1	—	—
Bonner Co.	1	—	—	—	—
Bonner Co.-R. O. Harvey	1	—	—	—	1
Perry Browning et al.	—	—	1	—	—
Burk Royalty Co.	1	—	1	—	—
L. T. (Bobby) Burns et al.	7	2	1	2	1
L. T. (Bobby) Burns-L. A. Long	—	—	2	—	—
Cato Oil Co.	—	1	—	—	—
Christie-Hickman Drilling Co.	2	—	—	—	—
C. W. Clark et al.	—	—	1	—	—
Clyde-Texas Oilfields Co.	1	—	1	—	—
Consolidated Oil Co. et al.	1	—	—	—	—
Deep Oil Development Co.	21	4	1	—	1
Deep Oil Dev. Co.-The Bonner Co.	2	1	—	—	—
Deep Oil Dev. Co.-J. J. Perkins	2	—	—	—	—
Deep Oil Dev. Co.-Seaboard O&G Co.	2	—	—	—	—
E. C. Oil Co.	—	—	1	—	—
Geier Bros., Inc.-F. B. Jackson, Jr.	—	—	1	—	—
Golding & Cochran (Toddie L. Wynne, Tr.)	—	—	1	—	—
Grace & Woods	1	—	—	—	—
Haberle & Thornton	—	—	1	—	—
W. H. Hammon, Hanlon & Buchanan, Inc.	1	—	—	—	—
Hammond Oil Co.	1	—	—	—	—
J. T. Harrell-E. H. Eddleman	1	—	1	—	—
Humble Oil & Ref. Co.	—	—	1	—	—
Jack E. Kadane et al.	1	—	1	2	1
King Oil Co.	1	1	—	—	—
King Oil Co.-Perkins-Cullum	—	—	1	—	—
O. F. Kolp et al.	—	—	1	—	—
LeBus Bros. et al.	2	—	—	—	—
Lewis Production Co.	—	—	—	—	1
Jack H. Martin et al.	1	—	—	—	—
Manson Oil Co.	—	—	—	1	—
Melat & Graham	7	1	—	—	—
Wheeler Nazro et al.	—	—	—	1	—
E. C. Norwood et al.	1	1	—	1	—
W. B. Omohundro et al.	1	—	1	2	—
W. B. Omohundro-J. I. Staley	1	—	—	1	—
W. H. Peckham et al.	1	—	—	—	—
Perkins-Cullum Oil Co.	—	—	1	—	—
Petroleum Producers Co.	10	2	2	—	1
Reed-Glass & Crenshaw	2	2	1	—	1
R. G. Drilling Co.-J. T. Harrell	—	—	1	—	—
H. L. Roach et al.	—	—	1	—	—
C. P. Sheldon et al.	—	—	—	—	1
J. I. Staley Oil Co. et al.	2	—	1	—	—
E. J. Stump et al.	—	1	—	—	—
Sunray Oil Co.	—	—	—	—	2
Texas Company	—	—	—	1	—
Sam K. Vierson et al.	—	—	—	—	1
Hulda B. Wallace et al.	—	—	—	1	—
Wichita Cotton Oil Co.	—	1	—	—	—
Joe A. Worsham et al.	—	—	—	—	1
Totals	75	17	27	12	*13

*Numerous "paper" locations and pending obligations not listed.

barger County have commanded attention lately for deep oil prospects. The Chalk Hill field, Archer County, has 2 small completions in the Strawn zone, and is the most productive Canyon area in the district. Wilbarger County's Rock Crossing field registered its first oil production from the Canyon horizon early this year, and the Strawn is to be explored by several wildcat projects authorized lately.

Many Companies Enter K-M-A Field

EXPANSION of the K-M-A field's deep zone into the largest oil producing area in North Texas in recent months has afforded opportunities for all operators that are willing to buck pyramiding lease prices to participate. More than 100 separate companies and groups of individuals are likely to take part in the development of this high gravity oil field when drilling operations reach the peak stage some months hence.

Total of 49 companies and independent units are sharing in the production and development, disregarding the various joint enterprises these are carrying on with the same organizations. Productive limits of the 3800-foot Strawn zone are subject to additional major extensions. Majority of the six deep failures drilled within and adjacent to the producing area are partially discounted through improper completion during the early stages of exploratory work, which yielded the first oil producer in July, 1931.

Additional production extensions will swell the list of operators, as many of the late entrants have chosen wildcat leases rather than to pay large cash bonuses for proved acreage. Sub-division of proved leases for the purpose of selling off sufficient acreage to finance drilling paves the way for additional concerns to enter the field as active operators.

Development of the deep horizon requires a strong financial background. Substantial independents that have large holdings are giving serious consideration to the threat of becoming too deeply involved with offset drilling obligations. Long period required to amortize the cost of a completed well from production revenue eliminates short term financing.

The cost of a completed flowing well averages $25,000, including $12,000 paid to rotary contractor for labor, fuel, water and other smaller items in carrying a hole to the 3800-foot level. Over-all cost will be materially increased on pumping completions, and a large percentage of the total will need artificial lift shortly after going on production. Top allowable for the 75 completed wells is 58 barrels daily each. This quota is likely to be slashed, else placed temporarily on a 6-day week basis, until next spring. The oil commands the top posting of $1.20 per barrel, making a gross revenue of $69.60 daily per well.

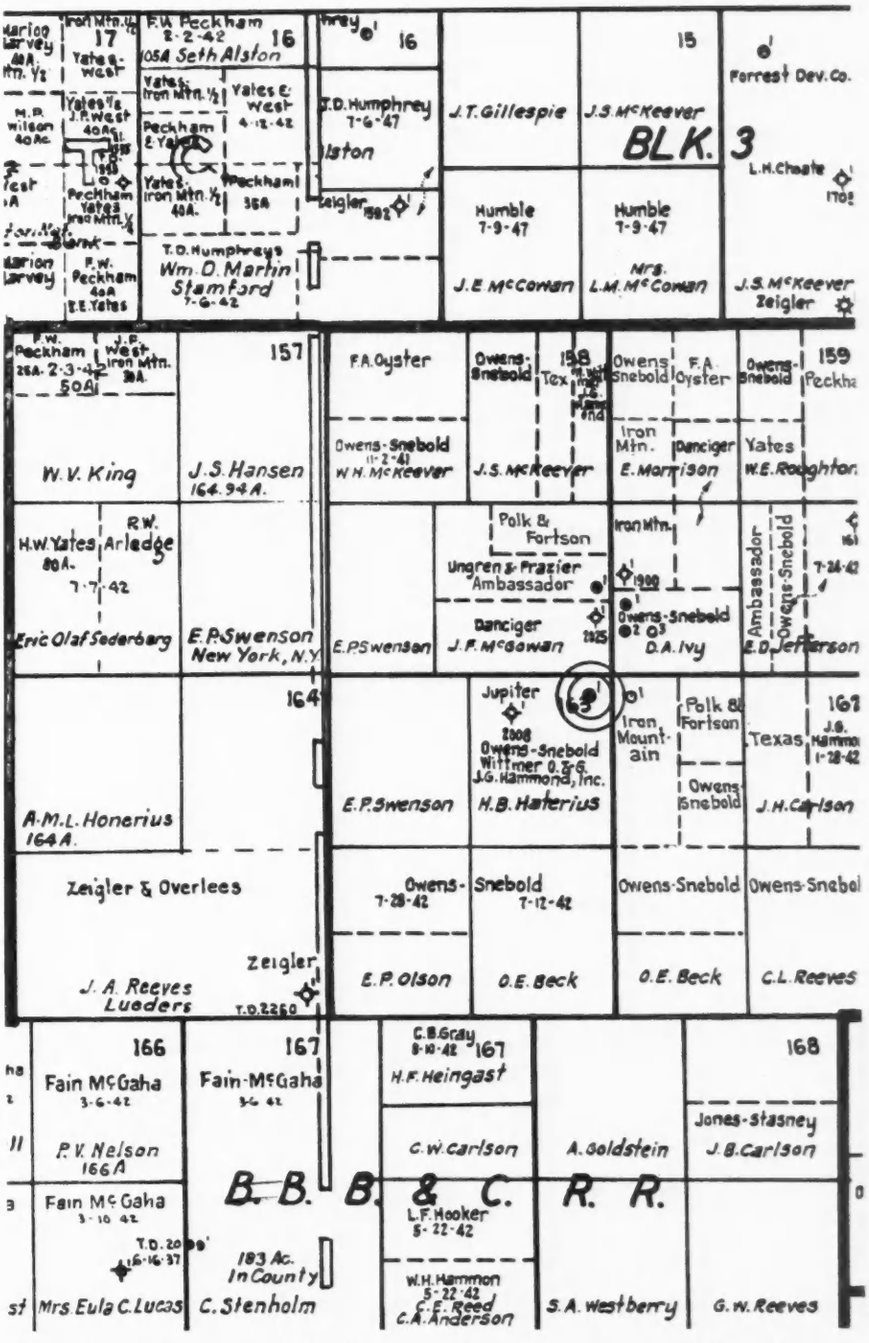
Austin.—The Texas Railroad Commission this week approved 462 permits for drilling new wells in Texas, 290 more than were allowed the previous week.

The East Texas field advanced to first place with 124 new locations, including 68 in Gregg, 43 in Rusk, 11 in Upshur, and 2 in Smith County. East Central Texas operators listed 26 locations including 11 in Marion County.

There were 52 permits reported from West Texas including 13 in Ward and 10 in Howard County. West Central Texas listed 13 new locations.

First Canyon production in northwest Shackelford

Abilene, Texas.—Northwestern Shackelford County recorded its first production from the Canyon sandy-lime horizon, when Owen-Snebold Oil Corporation et al's H. B. Haterius 1, northeast corner of Section 163, BBB & C Ry. Survey, flowed by heads at rate of 400 barrels daily natural at 3208-13 feet. This new strike is in the Ivy 3-well pool discovered by the above concerns in the 1930-foot lime last January, and is 4½ miles northeast of the Avoca pool, only Canyon lime area in Jones County. Operators are inclined to discount the possibility of



Flowing production from the Canyon horizon was uncovered in the Ivy shallow pool, northwestern Shackelford County, by Owens-Snebold Oil Corporation et al's Haterius 1, indicated by circle on above map. This deep discovery is 4½ miles northeast of the Avoca field, Jones County, first Canyon strike in the district. (Map by Southwest Mapping Company, Fort Worth.)

the two pools being linked by the Canyon, although identical geological section prevails in both and at about the same sub-sea depth. J. G. Hammond, Inc., and Wittmer Oil & Gas Properties have an interest in the discovery well.

Substantial boost in initial rating for the Ivy pool deep well is likely to follow acid treatment. Excellent results have been obtained with acid by Avoca operators. Iron Mountain Oil Company, co-discoverer of the Avoca field, holds the east offset to the Ivy pool strike, and has made a location, while Danciger Oil & Refineries, Inc., is due to drill a north offset.

Canyon has become a popular objective for wildcatters engaged near the Jones-Shackelford County line, due to prolific wells in the Avoca pool, which is proved for one mile plus two locations in a north and south trend. The width has not been determined, but failures to the southeast and southwest indicate the spread may be less than one mile.

Efforts of Sunray Oil Company's Robinson 7, NW SW NW H&TC Ry. Section 172, Rotan pool, Fisher County, to uncover a lower pay zone in the lime met with failure. This west edge test was dry in the 3500-foot oil horizon, and developed hole full of water in the Howard lime at 3870-72 feet. Magnolia Petroleum Company's Ella Smith 2, offsetting the easternmost producer, showed hole full of sulphur water in the lower lime at 3853-82 feet, with an elevation of 1942 feet. This test was plugged back to 3516 feet and swabbed 121 barrels of oil in 20 hours after 30-quart shot at 3499-3508 feet. Rotan has 19 producers, and has been proved for one mile in width, while production extends ¾-mile in a north and south trend. Southern Oil Corporation of America's Ramby 1, about 1½ miles west of production, missed the Rotan pay and suspended operations at 3801 feet.

TEXAS PANHANDLE Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARSON COUNTY—		
Magnolia, fee (No. 244) 31	377	3072
Texoma Nat'l Gas Co., Mauldin 1-E	¶48.9	2702
Timms-Dietsch Oil Corp., Jordan-Brown 3	117	3236
GRAY COUNTY—		
Drlg. & Explor., Inc., M. Leopold 7	455	3301
Dyke Oil Co., G. H. Sanders 5	585	2914
Gulf, S. Faulkner 10-A	302	2946
Magnolia, J. W. Cantrell 4	82	3175
Fee (No. 227) 18	311	2905
Shamrock O&G Corp., G. H. Saunders-Big Gray 5	795	3128
Stanolind, J. A. Hood 4	448	3033
HUTCHINSON COUNTY—		
Drlg. & Explor., Inc., E. E. Watkins 13	433	2957
Gulf-Panhandle Ref. Co., C. L. Dial 76	468	2996
Rayden Oil Co., Ed. Mayer-Starnes 3	843	3125
Stanolind, J. L. Moore 11	344	3168
Stayton Oil Co., J. W. Moore 5-C, sec 22	448	3181
Travelers Oil Co., W. B. Haile 4-B	826	3056
Turman Oil Co.-Plains Pet. Corp., J. A. Whittenburg 15-A	773	2950
J. A. Whittenburg 8-B	728	2734
MOORE COUNTY—		
Magnolia, E. C. Brittain 6	¶30.5	3560
Shamrock O&G Corp., J. T. Snead 9	¶78.8	3161
SHERMAN COUNTY—		
I.T.I.O. Co., Davis 1	†	2642

*Failures; †Junked; ¶Million cu. ft. gas.

EAST TEXAS

Field operations show usual year-end slump.

* * *

Large percentage of wells spaced too close.

Kilgore, Texas.—Usual year-end curtailment of drilling in the East Texas field is evident. Total operations have declined for 3 consecutive weeks, and this trend may continue into the forepart of 1938. Current report on field activity accounts for 158 operations, including 81 drilling tests. Total operations are at the lowest level reached since last spring when a price advance touched off a drilling program that would do justice to a new flush field.

East Texas property owners as a whole have prospered the past year, and have maintained an average of 90 rigs in continuous service during the last half of the year. Development has been pushed during the last quarter in the face of disturbing market factors, and the sacrifice of a day's production out of each week for 4 weeks. Desire to reinvest profits in additional wells to be charged to 1937 business accounts for many of the late completions.

Large percentage of the completions in recent months and current operations center upon leases that have a greater well density than the average for the entire field, which has an average of 1 well to 5½ acres. An impressive number of leases with more than 1 well have an average of less than 1 acre per well, and development is being continued. Sanction being given by the railroad commission to well permit applications filed each week makes a farce of the spacing rules, and provides a profitable income for attorneys who specialize in procuring spacing exceptions.

NORTH TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ARCHER COUNTY—		
L. T. Burns et al, F. Albers 16-A, blk 118	*	2334
R. E. Churchwell 5, blk 145	8	1162
E. E. Hildebrand 2, sec 145	*	1168
Humble, D. L. Wolfe 9, sec 1	*	1414
Martin & Hines, T. B. Wilson 3, sec 2	20	1595
T. C. McCurdy et al, M. F. Martin 3	*	1080
Whitehill Oil Corp., H. S. Morrison 27, blk 4	3	675
COOKE COUNTY—		
A. D. Robinson et al, Otto 10-B, blk 5	15	1286
E. J. Ruwaldt et al, Andress 2	30	881
DENTON COUNTY—		
Wells, Dodson & Pearson, Geo. Hughes-Dutton 1	*	2267
JACK COUNTY—		
Burk Roy. Co., J. M. Box 4	†	3101
Hamilton Pet. Co., Johnson Bros. 1	*	3346
J. S. Rhodes 3	190	2360
Hanlon-Buchanon, Inc., E. B. Calvin 2	565	3002
L. A. Long et al, W. J. Smith 5	276	2956
Perrin & Gillespie, Clayton Bros. 2	432	3090
THROCKMORTON COUNTY—		
Marshall & Kennedy, K. J. Wright 1, sec 933	*	575
WICHITA COUNTY—		
Bridwell Oil Co., H. Willis 23	*	265
Clyde-Texan Oilfields Co., A. W. Burnside 1	108	3961
Aaron Cohen et al, C. Guyer-Duke 4-A	*	330
J. T. Harrell-F. H. Eddleman, First Nat'l Co.-Gulf 1, blk 26	1440	3855
W. B. Omohundro-J. I. Staley, First Nat'l Co. 1, blk 27	735	3850
Peterson & McCarty, J. J. Perkins 1	*	600
Petroleum Prod. Co., First Nat'l Co. 1-H, blk 28	1200	3842
Geo. Proctor et al, Foster-Allen 22-A, sec 1	12	848
WILBARGER COUNTY—		
Lawson & Leavell, Waggoner Est. 13, sec 109	171	1834
YOUNG COUNTY—		
C. E. Beavers et al, Cooper-Siebold 1, sec 81	48	1195
Thos. D. Humphrey, Ball 2, sec 445	610	3927
S. R. Jeffery 1, sec 467	300	3934
Lupton & J. McLester, J. G. Choate 3	302	3651
Stuckey O&G Co., E. C. Keith 1, sec 28	*	750

*Failures; †Junked; ¶Million cu. ft. gas.

Panola well plugs back to make gas flow

Shreveport. — Magnolia Petroleum Company's E. A. Hull 2, Thomas Applewhite Survey, Panola County, Texas, which plugged back to Travis Peak from 8718 feet, and tested dry at 6070 feet, last week when plugged back and tested at 5950 feet showed 4,000,000 cubic feet of gas daily at that depth. The well also showed some distillate. Casing was perforated with 50 shots from 5910 to 5936 feet.

H. Edwards Drilling Company is rigging to deepen Logansport Pipe Line Company's Rushing 1, Mannan Smith Survey, Panola County. Total depth is 2950 feet

Continental Oil Company has leased 3000 acres of Louis Werner Sawmill Company land in Panola County around the Thomas Applewhite, John Husband and William A. Pope Surveys. Gulf Oil Corporation is buying some acreage in the Waskom field, Harrison County, having taken 70 acres in the James Shadoins Survey and 53.33 acres in the William Tiller Survey.

M. W. O'BRIEN, former secretary and treasurer of Seaside Oil Company of California, has been elected president of the company, succeeding the late J. F. Bushnell, who founded the organization.

EAST TEXAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
JOINER AREA—		
American Liberty, Frederick 8-A (20-ac)	120	3625
Atlantic, H. L. Griffin 14 (80-ac)	2400	2665
Fischer et al, Eaton 2 (½-ac)	6500	3750
Gulf, Keeling 10-A (53-ac)	3600	3799
Humble, Hill 7 (55.37-ac)	9000	3740
Kangerga 66-A (333¼-ac)	5600	3669
Pilgreen 19 (136 4-ac)	5000	3764
Thompson 28 (116-ac)	6300	3674
Wilson 7 (53.07-ac)	8300	3739
P. G. Lake, Inc., Lee 7-A (43.58-ac)	3200	3778
Milford Oil Co., Thrash 11 (30-ac)	5500	3730
Sabine Valley Gasoline Co. (H. R. Dickerson), M. C. Spence-Sun 1	*	3738
Sun, J. P. Seale 11 (199.32-ac)	180	3705
Turman Oil Co., Deason 11 (50.7-ac)	7200	3773
Wynne Drl. Co.-Bering Oil Co., Knight 1 (2.81-ac)	*	3632
KILGORE AREA—		
Beard et al, Muckelroy 6 (19-ac)	4500	3605
Muckelroy 7 (19-ac)	5000	3591
Bradley et al, King 11 (36-ac)	4000	3634
King 12 (36-ac)	4000	3621
Callender et al, Rowland 7 (8 84-ac)	120	3530
East Whaley Oil Co., Elder Bros. 3, blk 119	2500	3560
J. H. Fleming, Methodist Church 2 (1-ac), blk 152	500	3564
Gen'l American Oil Company, Douglas-Shell 16 (138-ac)	1000	3645
Gulf, S. Hilburn 99-B (172.38-ac)	8000	3542
Humble, Laird 29 (156.92-ac)	7500	3673
Magnolia, Still 10 (45-ac)	120	3576
Edward Pace, Tr., Elder 4 (2.2-ac)	3600	3564
Patterson Drl. Co., Brightwell 2 (3.4-ac)	8500	3645
Chas. Pettit et al (was W. F. Hollifield), J. Wooley 4 (21-ac)	7200	3695
Producers Inv. Corp., Butts 8 (11.41-ac)	3200	3578
Royal Pet. Corp., Taylor 7 (40-ac)	600	3603
Sinclair Prairie, Elder 9(60-ac)	8800	3505
Sun, Hilburn-Loyd 35 (133.7-ac)	4000	3659
J. D. Wrather-Westline Oil Co., Morris 5 (34.6-ac)	720	3674
LONGVIEW AREA—		
Atlantic, Duncan 26 (134.7-ac)	9300	3736
Porter 25 (109¼-ac)	8000	3720
Ellis Oil Co., C. J. Mackey-Humble 21 (147.1-ac)	600	3696
FHE Oil Co.-Fleming-Kimbell Corp., Christian 24 (87-ac)	9000	3680
Flemister 14 (45-ac)	9200	3620
Gen'l American Oil Co., Sheppard 15 (57.45-ac)	7000	3656
Gulf, Fonville 14 (100 ac)	8600	3553
Humble, Armstrong 32 (155.7-ac)	7500	3626
Magnolia, Smith 14 (97-ac)	7000	3619
W. R. Nicholson et al, fee 3 (460-ac)	500	3714
Fee 4 (460-ac)	500	3687
Overton Ref. Co., Callahan 1	*	3701
W. L. Pickens et al, League 4	2400	3572
Selby O&G Co., Ingram 14 (80-ac)	9600	3531
Shell, Lockett 4 (25-ac)	10,000	3651
G. W. Richey 31 (169.4-ac)	9400	3609
Sun, Loden 17 (100.58-ac)	6400	3701
Loden 18 (100.58-ac)	3600	3680
Superior, Ingram 25 (164-ac)	10,300	3575
ANGELINA COUNTY—		
Petroleum Heat & Power Co., Southern Pine Lumber Co. 1	*	2502
FRANKLIN COUNTY (Talco)—		
B. G. Byers & King, State 2 (1.9-ac)	285	4290
Byrd-Frost, Sanders 2	52	4294
L. S. Flannery, Hedrick 10 (65-ac)	539	4315
Humble, King 48 (1053 36-ac)	336	4315
Rotondi & O'Neal, Bolin 3 (12½-ac)	354	4292
Stroube & Stroube, Hedrick 6 (65-ac)	381	4306
TITUS COUNTY (Talco)—		
Byrd & Frost, Belcher-Gulf 5 (80 ac)	173	4298
Housh & Thompson, Hargrove 8 (75-ac)	367	4245
Humble, King 53 (1053.36-ac)	275	4313
Oliver 1 (1-ac)	466	4312
Lucey Pet. Co., Williams-Gulf 12 (319 85-ac)	460	4265
HENDERSON COUNTY—		
Tide Water, Seaboard & Humble, McElreath-Suggett 2-C	¶8 & 330	9320
CASS COUNTY (Rodessa)—		
Union Prod. Co., Carter et al 1, Bryant Holmes sur	487	6110
Starcke A-3, D. Gilliam sur	66	6050
MARION COUNTY (Rodessa)—		
Gulf, M. Grubaugh 1, A. de los Santos Coy sur	600	6127
Shell, Cook et al 1, R. Bennington sur	545	6084
Lizzie Henderson 1, R. Bennington sur	256	6026

*Failures; †Junked; ¶Million cu. ft. gas.

THIS CHRISTMAS.....

. . . when the postman's every call floods you with the usual seasons greetings . . . your Christmas tree is burdened with presents, to the delight of all the children from six to sixty . . . and you stand on the threshold of a new year . . . pondering the old one . . . we hope that your reflections bring to mind at least one good turn we've done for you that has made our relations pleasantly indelible.

THE
BREWSTER
COMPANY, INCORPORATED

Shreveport, La.

Longview — Lake Charles — New Iberia
Houma — Corpus Christi — Rodessa

SOUTHWEST TEXAS

East Premont looms as important production.

* * *

Placedo and Keeran fields practically joined.

Corpus Christi.—Displaying gusher qualities, East Premont field, new southeastern Jim Wells County discovery, looms as a major strike for South Texas. If initial flow is a criterion for the area's future possibilities, it undoubtedly will be a major producing district.

Magnolia Petroleum Company et al's A. A. Seeligson 7, flowed 948.4 barrels of 36.5 gravity pipe line oil in 16 hours through ¼-inch choke and showed equalized pressures of 1700 pounds. Another gauge reported from the well was 228 barrels in 4 hours through 9/64-inch choke under pressures of 2000 pounds on tubing and 1800 pounds on casing.

The above, located 5000 feet out of the southeast corner of the 8926.96-acre lease, drilled to 8165 feet after logging 112 feet of sand between 6582-6694 feet. Casing was set at 6779 feet and perforations made at 6585-95 feet with 16 shots.

The performance of the well, the thickness of sand section, the gravity of the oil, and its position in the Frio sand section suggests that this area may rival the Tomoconnor district of Refugio County in importance. This area is the present leader of the trend from a reserve standpoint.

Of particular interest is the fact that the Phillips Drilling Company and Darby Petroleum Company jointly hold a block 1 mile to the south; Sun Oil Company less than 2 miles to the south and southwest and the Humble Oil & Refining Company to the northeast, east and south, some acreage less than one mile away. The Humble Oil & Refining Company's holdings are the gigantic King Ranch. The field is one mile west of the Kleberg County line, thus placing another county in the path of a major oil development. The big block upon which the discovery well is producing is owned by Magnolia Petroleum Company, half; Sinclair Prairie Oil Company, and Transwestern Oil Company, each a fourth.

More enthusiastic geologists indicate that the field will cover an unusually large area and will tie closely into a group of fields along the Agua Dulce trend, 25 miles to the northeast in Nueces County. In any event, the discovery does materially extend the play southwest toward Brooks, Hidalgo and other Rio Grande Valley counties, which have been the center of a hot leasing play during the past several years.

Northeast, and on trend, Camp Production Company is adding 8600 feet to the 6400-foot pay in the Stratton field, southeastern Nueces County. Wardner 3, one location south of Wardner 2, cored oil sand at 6405-17 feet and was being finished as the week closed. The well is in the same sand as Wardner 1-A southwest of the field. Its offset to the north also found the 6400-foot sand but was completed at another level.

Up in the Agua Dulce-Stratton trend, Union Producing Company has several wells going ahead to the Vicksburg sands below 7100 feet and the Texon Royalty Company has one.

Still farther north, Southern Minerals Corporation's King 3, ¾-mile southwest of 2, perforated at 4012-15 feet and made a wet gasser with 1650 pounds working pressure. It extends production on the east flank of the Bentonville-King structure.

Plug Back for Gasser

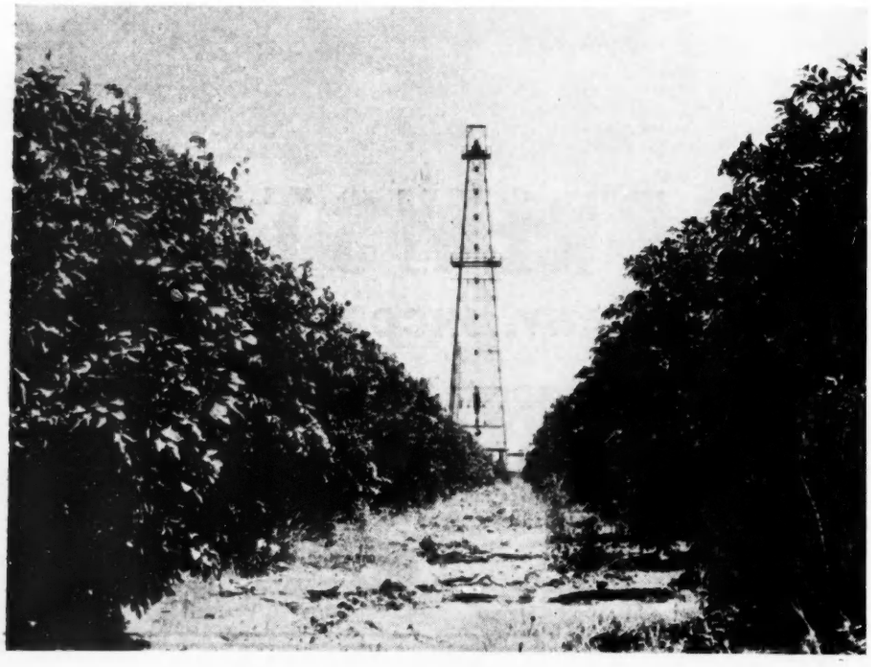
Wellington Oil Company and Seaboard Oil Corporation chalked up a discovery, being a work-over. Sevier 1-A in the Clara Driscoll field, was plugged back and perforated at 5258-65 feet with 12 shots where it made a large wet gasser.

Richardson Petroleum Corporation's second wildcat northeast of the Luby field, Nueces County, apparently is an oil producer. Chapman 1, one mile north of present production, cored oil sand 5904-24 feet, but drill-stem test failed. Casing was landed on the sand and plugs were to be drilled over the week end. The field proper produces at 4300 and 5000 feet. Richardson Petroleum Corporation recently extended the field one mile northeast with a producer at 4000 feet. The new well is a further extension as well as a new sand discovery.

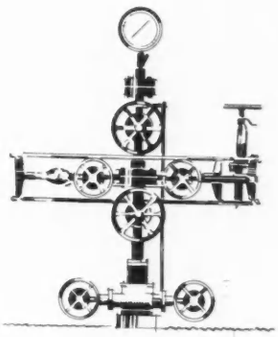
Keeran and Placedo Joined

Stanolind Oil & Gas Company's Henderson & Pickering 1, Benavides Survey, Victoria County, midway between the Keeran and Placedo fields, opened a new sand in the Frio and virtually tied in production of the two areas. The well flowed 147.52 barrels of fluid on a 10-hour gauge through 3/16-inch choke showing pressures of 560 pounds on tubing and 1180 pounds on casing. It showed 58 percent salt water and 42 percent 37.4 gravity oil. The test is flowing from perforations at 6372-75 feet, top of the sand, and likely is at the edge of the structure.

Barnsdall Oil Company's first attempt in the McFadden field, same county, provided an 1864-foot southwest extension to the Heterostegina or Greta sand production recently established by Transwestern Oil Company. McFadden 1 flowed at the rate of 5



Rio Grande Valley of Texas' famous citrus groves are giving way to oil development. Sterling Oil & Refining Corporation's Engelman producer in the La Blanca field, Hidalgo County, an 8000-foot well, is near the heart of what is reputed to be the largest single citrus grove in the world—orange, grapefruit, etc., trees being in rows for miles.



FIRST NATIONAL BANK

in Houston

extends to its friends and customers in the

OIL INDUSTRY

best wishes for a

Merry Christmas

and a Happy, Prosperous New Year

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

barrels per hour through ⅛-inch choke under a working pressure of 450 pounds after finding oil sand at 4404-12½ feet.

Gulf Oil Corporation extended the regular sand of the Heyser field, same county, 3600 feet to the northeast, but is to drill ahead to test the pays at 5500, 5700 and 6000 feet. Echols' Lander 3 is a ¼-mile north extension to the 6000-foot pay recently discovered. It is the second completion in this horizon.

Hogan Oil Company apparently has provided a 1-mile northwest extension to the Refugio field. After finding a broken sand, sandy shale and shale section between 6274-6357 feet, J. E. Kelly 1, Power Survey, was drilled to 6437 feet and pipe landed at 6293 feet. It was completing late in the week.

Zavala County Edwards test shows sulphur water

San Antonio.—Batesville, Zavala County Edwards limestone prospect, was dampened late in the week when H. F. Wilcox Oil & Gas Company bailed four bailers of sulphur water per hour from Gilliam 2 without lowering the fluid level below 600 feet from bottom. The well attempted to open production in the Edwards limestone at 3975-77 feet, where a saturated section was encountered. The well will receive further tests, being deepened and tested one foot at a time.

The area was discovered earlier in the year by Gilliam 1, which made a large producer from a Georgetown limestone crevice.

Amerada Petroleum Corporation is extending the Pearsall field, Frio County, one mile to the east with Melms 1. After recovering junk in the hole at 3921 feet, it is ready to make a production test.

Second producer and a 1000-foot north extension to the new Austin chalk area east of Cedar Creek, Bastrop County, was provided through completion of Hantho-Nelson, Inc.'s Litton 2. The well pumped initially at the rate of 5 barrels per hour after acidizing with 4000 gallons. It topped Austin chalk at 1907 feet and is bottomed at 2259 feet.

Cole sand productive in Jim Hogg County

Laredo.—Darby Petroleum Company uncovered oil production in the Cole sand, Jackson age, on its big Las Animas block in Jim Hogg County. After drilling three gassers along a 2-mile trend, Holbein 2-B, lot 30, Section 7, cored gas sand 1806-12 feet and oil sand to 1828 feet, bottom of the hole. A drill-stem test at 1803-17 feet was made in which 350 pounds pressure was developed and 80 feet of oily mud recovered in 20 minutes. The lower cores were sufficiently saturated that casing was set without taking a second test. Completion was being effected over the week end.

Moore & Meaders' Garcia & Villareal 1, Section 338, 1 mile north of Oilton production, Webb County, definitely established production in the Rosenberg or Cockfield sand when it flowed 12,000,000 cubic feet of gas and showed 850 pounds pressure. The production is from perforations at 2430-35 feet. Top of sand was recorded 2407 feet.

Two miles farther north and on trend, Kirkwood & Morgan's Garcia & Villareal 1, Section 720, was completing through perforations at 1967-74 feet, showing for a possible oil producer in the Mirando sand. It topped the sand section at 1955½ feet and showed gas in the upper portion.

Circle Oil Company has set casing on bottom at 3915 feet in Merle West 1-A on the southwest side of the North Sweden field, Duval County, and will attempt the first completion in the 3900-foot sand at the top of the Jackson formation. This sand has been present in other wells, but was passed through to complete in the zones ranging from 4700 to 5350 feet. The well had a series of gas and oil sands from 3864 feet to the total depth. A new oil sand about 100 feet shallower than the regular Government Wells sand in the Hoffman field has been uncovered through the recent completion of Cox & Hamon's Cuellar Brothers 2, Section 117, which produced 100 barrels a day via artificial lift when casing was perforated at 2550-70 feet with 24 shots. It failed to produced in the Loma Novia at 2807 feet.

Sarco Creek field opened with Vicksburg production

Beeville.—Pettus district's first Vicksburg sand oil field was virtually assured late in the week with Rual B. Swiger swabbing at least three barrels of oil per hour through tubing from Carrie Wood 1-B. The test, in the John Shearn Survey, southern Goliad County, opens the Sarco Creek field. The test is completing through perforations at 5009-14 feet, upper portion of the sand.

The test encountered mechanical difficulties requiring several cementing jobs. It is likely that the several times the well was cemented cut off some of the pressure and it is expected that the test will be pumped. In any event, further drilling will be resorted to in an effort to prove up the field.

La Blanca production extended mile northwest

Mission.—La Blanca, South Texas' deepest field, was given another one-mile northwest extension by Gulf States Oil Company's Delta Orchards 2, Lot 3, Section 94. The well logged the regular high-pressure oil sand at 7855-7905 feet and casing was landed on bottom at 7960 feet.

Much interest centers around a projected 7000 feet or deeper test for the main Samfordyce structure on the Hidalgo-Starr County line. Proposed by Ralph E. Fair, Inc., the well will be carried to the Cockfield. Several major companies and operators in the field are supposed to be supporting the test, definite details of which have not been announced. This test is of high importance in that the Samfordyce structure has been highly touted for its deeper possibilities. Likewise, it will be a key to deeper drilling in the Valley sector should it develop commercial qualities.

A new Frio sand field in Starr County, five miles north of Rio Grande City, appears possible with Calderoni-James-Follette completing Rodriquez 2, Share 56, Porcion 80. The well is in sand at 1484-88 feet, the same level at which the first test, 330 feet to the southeast, showed oil.

SOUTH TEXAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BASTROP COUNTY—		
Hantho-Nelson, Inc., Litton 2, Barker sur (E. Cedar Creek)	120	2259
CALDWELL COUNTY—		
Compton, Adkinson 2 (Branyon)	*	2412
Golden West, Malone 4 (Salt Flats)	200	2596
Hantho-Nelson, Inc., Branyon 5 (Branyon)	240	2076
Moore 2 (Branyon)	90	2249
Lewis-Patten, Brown 2 (Buchanan)	*	2260
Murchison, Closuit, Reed et al, Jennings 3 (Luling)	441	2084
Ormsby, Moses 6 (Salt Flats)	100	2690
Potter & Snowden, Inc., Medlin 4 (Buchanan)	110	1980
Taylor, Branyon 9-B (Branyon)	42	2111
Clark 2 (Branyon)	60	2329
GUADALUPE COUNTY—		
Gulf, Dix 8 (Darst Creek)	200	2510
Mehu, Schulz 1, Felix Chenault sur	*	1620
ARANSAS COUNTY—		
Atlantic, Porterfield 7-B (Campbell)	500	7254
BROOKS COUNTY—		
Standard of Texas, Mestina 1, lse 1 (Alta Mesa) (wo perf 3475-84)	¶10	4618
CALHOUN COUNTY—		
Buchanan and Blanco, Morris & Dunwoody 5 (Heyser)	650	5497
Humble & Plymouth, Welder 14 (Heyser)	500	5468
Sinclair Prairie, Bennett 5 (Heyser)	650	5745
GOLIAD COUNTY—		
Jane, Mudd 3 (N. Pettus)	175	3893
JIM WELLS COUNTY—		
Porter, Wolcott 1, Sartain & Co. Farm Lots subd	*	6663
Presnall, Holmes 1 (Premont)	50	2257
KARNES COUNTY—		
Luling, Boyce 14 (S. Burnell)	500	3644
LIVE OAK COUNTY—		
Glasscock, Franklin 1 (Ezzell) (perf 1414-23)	125	1425
Grimes, Fredle 1, Refugio School Land sur No. 6	*	3787
Valerio, Evans 1 (Ezzell) (perf 1440-51)	249	1460
NUECES COUNTY—		
Crown Central, Page 6 (Saxet)	450	4860
Greta, Isensee 8 (Saxet)	†	4726
Howell, Hutchins 7 (Saxet) (perf 6722-26 ft)	400	6768
Humble & Barnsdall, Chapman 2 (Flour Bluff)	500	6657
Maryland, Stillwell-Sagarino (Saxet) (perf 5756-58½ ft)	¶10 & 50	5785
Richardson, Quiroz 13 (Saxet)	500	7012
Sannix, Nesloney 1, Casa Blanca gr	*	6505
Wellington & Pan American, Sevier 1-A (Clara Driscoll) (wo perf 5258-65 ft)	¶12	6075
REFUGIO COUNTY—		
Nordan, O'Connor 4 (Tomoconnor-Greta)	1200	5928
Quintana, Heard 7-A (Tomoconnor-Greta)	2500	5925
O'Connor 59-A (Tomoconnor)	2750	5935
Shield & Southern Cross, Ryals 2-C (Refugio)	600	6797
Union, Lambert 66 (Tomoconnor-Greta)	1000	5917
VICTORIA COUNTY—		
Barnsdall, McFaddin 1 (McFaddin)	500	4412
Echols, Lander 3 (Heyser)	650	6040
Stanolind, Henderson & Pickering 1, Benavides sur, (perf 6372-75 ft)	250	7502
Sun, Coffey 4 (Heyser)	275	5749
DUVAL COUNTY—		
Bridwell, Ancira 8 (N. Sweden)	450	4784
Cox & Hamon, Cuellar 2 (Hoffman)	100	2807
Hiawatha, Parr 4 (N. Sweden)	500	4790
Southland 5 (N. Sweden)	500	4817
Standard of Kansas, Rossi 11 (N. Sweden)	450	4799
Taylor, Parr 2, Survey 279	*	6015
JIM HOGG COUNTY—		
Darby, Holbein 1-C (Las Animas)	¶15	1865
McMULLEN COUNTY—		
Bennett, Nueces 1, Survey 166	*	1576
Ezzell, Fee 2-A (Ezzell)	250	1506
Fee 1-D (Ezzell)	¶2	1506
Fee 2-D (Ezzell)	¶1½	1495
Fee 3-D (Ezzell)	¶2	1729
WEBB COUNTY—		
Bennett, Gates 2, Section 22	*	2814
Bridwell, Martin 14 (Oilton)	95	1935
Cox & Hamon, Garcia 6 (Oilton)	90	1910
Garcia 8 (Oilton)	90	1910
Killam, Garcia & Villareal 4 (Killam)	30	2006
Mays, Dickens 3 (Killam)	75	2009
Dickens 4 (Killam)	40	2005
Moore & Meaders, Garcia & Villareal 1, Survey 338	¶12	2525

*Failures; †Junked; ¶Million cu. ft. gas.

LOOK at LIFE
in the oil well equipment industry—*thru the eye of Axelson's candid camera*

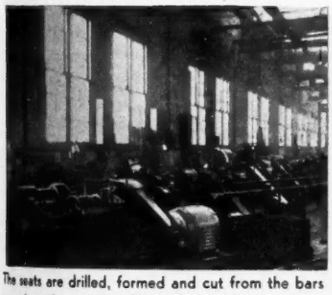
Axelson Deep Well Plunger Pumps are operating efficiently and economically in oil wells the world over. One of the important factors of plunger pump operation is the ball valves. This series of candid camera shots shows steps in the production of Axelson seats and balls, the care and precision with which they are made.

Alert oil men will recognize the outstanding features of Axelson production methods which make Axelson seats and balls as nearly perfect operating a ball valve as is possible to build in the world today.

The final inspection of Axelson seats and balls is made by Andrew Andris, who has been making and testing balls and seats in the Axelson plant for more than 18 years. The skill and experience of Axelson employees are important factors in the production of pumping equipment. Axelson's reputation in the oil industry today is built on unceasing efforts to build a better product.

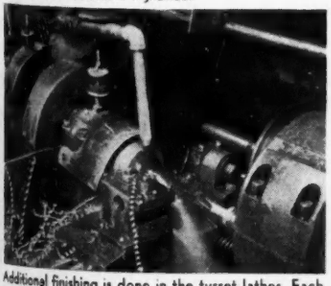
From large stocks of special alloyed, heat-treated steels Axelson seats are built to rigid specification. Samples from each bar are tested and inspected in the laboratory before they are accepted. Any deviation from Axelson standard means rejection.

Almost human are the intricate operations of the automatic screw machines. Unlike human beings, these machines do not vary, once they have been set. Every seat is uniformly cut. Each one looks like the next, but all must pass individual tests.

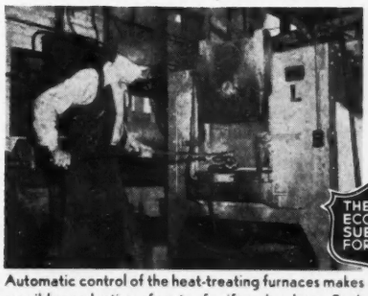


The seats are drilled, formed and cut from the bars on automatic screw machines. Each of the four types of Axelson seats starts its manufacturing operations in this way. The uniform high quality of Axelson products is the result of constant vigilance.

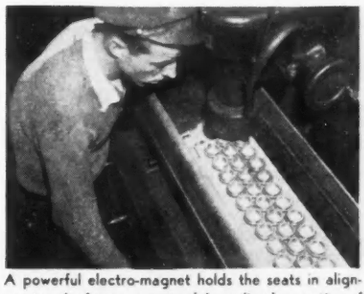
Imprinting name, size, material and code number. AXLOY and X-L seats are of corrosion-resisting steel. DURAX and ACME seats are of specially selected steel properly heat-treated for long life. Axelson builds ball valves to meet every well condition.



Additional finishing is done in the turret lathes. Each operation is followed by an inspection to insure precision and uniformity. Improper machining results in rejection at any point during the process of manufacture. Care at every step assures few rejections.

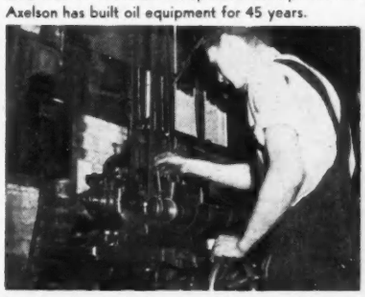


Automatic control of the heat-treating furnaces makes possible production of seats of uniform hardness. Each seat is tested before and after heating to make sure it meets specification. Here Axelson seats get hardened for a long life in a deep well plunger pump.



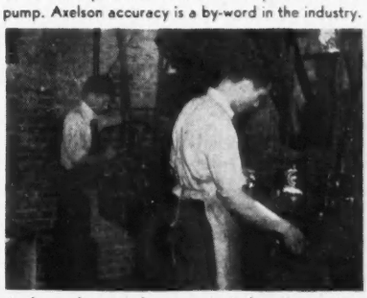
A powerful electro-magnet holds the seats in alignment as the faces are ground. Long-lived operation of Axelson seats and balls is due largely to the extreme care with which all machine operations are performed. Axelson has built oil equipment for 45 years.

Perfect contact between each seat and ball is accomplished by lapping in patented machines designed and built by Axelson for this operation. It is here that Axelson balls and seats become partners for greater pumping production.



Grinding the outside diameter of the seat and the face of the flange is a precision operation. On this depends the accurate centering of the seat in the valve, a matter of vital importance in the efficient operation of the pump. Axelson accuracy is a by-word in the industry.

The seal between both sides of each seat and its ball must be perfect. Here we see seats and balls being tested. The ball and seat must hold a high degree of vacuum over a period of time and must not leak.



Axelson valve seats have a patented seating contour which is accurately ground on special Axelson grinding machines by skilled workmen. This patented Axelson seating contour means better valve operation for a longer time under any well conditions.

Axelson seats pass chemical, mechanical and metallurgical tests. These tests assure the operator of a ball valve which will give maximum service in the well. Axelson AXLOY balls and seats are ready for a long and productive life.

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DEEP WELL PLUNGER PUMPS

SUCKER RODS

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Mid-Continent and Eastern Distributor: Frick-Reid Supply Corporation • *Rocky Mountain Distributor:* Great Northern Tool & Supply Company.

Eleventh drill stem test fails on McFaddin wildcat.

* * *

Sun brings in second oil producer at Seabreeze.

* * *

Outpost at Seabreeze to test three oil sands.

Houston.—Another drill stem test, the eleventh, on Shell Petroleum Corporation's McFaddin 1, McFaddin Ranch prospect, S. A. Pace Survey, Jefferson County, last week failed to show oil from 5684 to 5751 feet, only 840 feet of mud being recovered. At the end of the week the test was drilling in shale below 5850 feet.

The only drill stem test on this wildcat which has shown oil was from 5389 to 5408 feet. It showed 450 feet of pipe line oil, 45 pounds pressure, and no water through quarter-inch chokes in nine minutes.

In the Cheek area, Jefferson County, Glenn H. McCarty's Broussard Trust 1, C. Hillibrandt Survey, drilling in shale at 7260 feet after logging top of the Flat Marginulina at 7260 feet, was reported running high on structure.

The second oil producer at Seabreeze, Chambers County, Sun Oil Company's Hoffman 1 came in making 829 barrels of pipe line oil daily through a quarter-inch choke with tubing and casing pressures of 1600 pounds from Frio formation at 8465 feet. Top of the sand was logged at 8422 feet, and seven-inch casing set at 8425 feet. Hoffman 1 is a south offset to Acom 3, the first commercial producer for the field.

Seabreeze Outpost Showing

Three miles southwest of the first oil producer at Seabreeze, Sun Oil Company's Broussard Hebert 2, T. & N. O. Section 127, was waiting on cement to set after coring oil sands at 8230 to 8240 feet. 8414 to 8463 feet, 8463 to 8490 feet. Casing was set and a production test will be made the coming week. If the well is a commercial producer it will extend Seabreeze field.

Ingot Oil Company and Merit Oil Company are preparing to make another test on Wright 1, Cedar Bayou area, C. Smith Survey, Chambers County. Casing was perforated from 6423 to 6428 feet. The last test made on the wildcat was from 6431 to 6433 feet, and it showed salt water and oil.

Another busy week was witnessed at Hastings field, Brazoria County, last week when Humble Oil & Refining Company and Stanolind Oil & Gas Company completed 12 oil producers. These companies have several other wells down to the sand which should be completed next week. There has been an average of 10 wells per week completed at Hastings during the past several weeks.

Get Full Control

Harrison and Abercrombie purchased the Atlatl Royalty Company's half-interest at Old Ocean, giving them full control of the field. The consideration was $2,850,000 of which $600,000 was cash, the remainder to be paid out of oil.

Two 10,000-foot wells are drilling at Old Ocean. Harrison & Abercrombie's Copland 1, C. Breen Survey, was down to 11,130 feet in shale last week after 7-inch casing was set at 10,300 feet. This is the deepest well yet drilled in the field. The same operator's Armstrong Fee 2, Polly and Chance Survey, was coring shale at 10,009 feet.

On the north side of West Columbia field, Sterling Oil & Refining Company and The Texas Company completed Phillips 5, G. Tennille Survey, flowing 288 barrels of pipe line oil daily through a quarter-inch choke. Tubing pressure was 400 pounds; casing pressure, 600 pounds. Phillips 5 is producing from Frio sand at 5653 feet.

South Bay City Extended

South Bay City field, Matagorda County, was extended west last week when Smith & McDannald completed Gaines 1, E. Hall Survey at 8212 feet for 400 barrels of 38 gravity oil daily, three percent basic sediment and water, through a quarter-inch choke. Tubing pressure was 240 pounds; casing pressure, 440 pounds. Oil sand was logged at 8116 feet and 6-inch casing cemented at 8110 feet. Smith & McDannald are the first operators other than Hammond Exploration Company to complete a well at South Bay City.

Withers and Five Corners fields, Wharton County, were joined last week when The Texas Company completed Pierce Estate C-41, J. Caldwell Survey, at 5550 feet. It made 295 barrels daily through a 12/64-inch choke, with a tubing pressure of 675 pounds and a casing pressure of 950 pounds at 5550 feet. Locations for Pierce Estate C-142 and B-12 were announced. The latter is in what has been considered Five Corners field, but is offsetting Pierce Estate C-41 in Withers field.

Six Wildcats Fail

Six wildcats were abandoned last week. The Texas Company's Johnson 1, Hillje prospect, Wharton County, was dry at 5401 feet; J. Bryan Eby's Rice 1, Waller prospect, J. H. Stephenson Survey, Waller County, was abandoned at 7813 feet; H. J. De Arman's Gieseke 1, Huffsmith area, Harris County, quit at 6120 feet; O. C. Garvey's Bubak Ernest 1, north of Eagle Lake, Colorado County, was plugged at 6509 feet, and Chapman Minerals Corporation's Sugarland Industries 1, south of Sugarland, was abandoned at 8010 feet.

Two thousand feet southwest of the discovery well at Call, Newton County, Houston Oil Company was coring at 7141 feet in Sabine Tram 2, H. & T. C. Section 37. On a production test at 7105 feet the well flowed salt water.

Southeast of production at Segno, H. H. Weinert's Hooks 1, I. & G. N. Section 3, was shut in waiting for storage last week. The well was completed after casing was perforated with 24 holes from 5330 to 5339 feet.

Stanolind Oil & Gas Company is rigging up a pumping unit on Oates 1, Clinton area, Harris County. The well flowed 50 barrels in 12 hours through flow valves from a new Miocene sand at 3835 feet.

TEXAS GULF COAST Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
FRIENDSWOOD—		
Humble, Cox 1	552	6050
HARDIN—		
Gulf, Hinson 1	552	7615
Strake, Finley 2	130	7548
HASTINGS—		
Humble, King 4	672	5675
Stanolind, Avitts B-4	192	5425
Brown 7	624	5780
Brown 9	565	6090
Cannon 5	596	6080
Drake 14	576	6080
Guido 5	580	5400
Hutchins 5	427	¶420
Pennock 6	611	5545
Reichardt 3	600	6080
Remley 3	610	6080
Roberts 4	605	5834
HIGH ISLAND—		
Stanolind, B & O 10	49	6594
LOCHRIDGE—		
Shell, Ramsey A-5	360	6368
MARKHAM—		
Harrison & Abercrombie, Kountz 1-B	100	3905
NOME—		
Sun, Tindall 2	*	5659
PIERCE JUNCTION—		
J. A. Deering, Herman Hospital 4	579	3703
ORANGE—		
Texas Co., Stark 6	552	5944
SEABREEZE—		
Sun, Hoffman 1	829	8465
TURTLE BAY—		
Stanolind, Silva 4	624	6614
SOUTH BAY CITY—		
Smith & McDannald, Gaines 1	395	8212
WITHERS—		
Texas Co., Pierce Estate C-41	295	5550
COLORADO COUNTY—		
O. C. Garvey, Burbank Ernest 1, n of Eagle Lake, M. Lapham sur	*	6509
FT. BEND COUNTY—		
Chapman Minerals Corp., Sugarland Industries, s of Sugarland, Brown & Belknap sur	*	8010
HARRIS COUNTY—		
H. J. DeArman, Gieseke 1, Huffsmith area, J. Bunker sur	*	6120
WALLER COUNTY—		
J. Bryan Eby, Rice 1, Waller area, J. H. Stephenson sur	*	7813
WHARTON COUNTY—		
Texas Co., Johnson 1, Hillje area, J. Bognal sur	*	5401

*Failures; †Junked; ¶Million cu. ft. gas.

SOUTH LOUISIANA

Wildcats preparing to test may open four new fields.

* * *

Raceland test logs oil sand at 10,185-10,222 feet.

Lake Charles.—Possibility of four new fields in this district loomed as four wildcats prepared to make tests at the end of the week.

In the Woodlawn area of Jefferson Davis Parish Union Sulphur Company's Calcasieu National Bank 1, Section 12-9s-8w, was waiting on cement to set at 8253 feet. Casing was perforated last week from 8263 to 8266 feet with 19 holes. Cement retainer was set at 8253 feet and perforations were squeezed. The test probably will be made from 8200 to 8300 feet.

D & D Oil Company's Lutcher Moore 2, northwest of Starks, Section 1-8s-13w, was also waiting on cement to set after showing salt water on another drill stem test. Last week casing was perforated with 29 holes from 8396 to 8418 feet and the well showed 30 stands of salt water, gas, and mud through quarter-inch chokes in 25 minutes. The hole has been plugged back to test upper sands.

Timbalier Bay Due Christmas

Gulf Oil Corporation's State PP 3, Timbalier Bay area, Section 36-23s-21e, Lafourche Parish, will be completed around Christmas. Geophysical work has been finished at 8728 feet and last week the hole was being conditioned prior to running screen and liner. State PP 3 was drilled to 8728 feet in salt, after logging top of the formation at 7741 feet. Previous drill stem tests at 6749 and 6970 feet showed oil in commercial quantities. It is planned to test sands at 6955 to 6968 feet. The wildcat will probably open another oil field in South Louisiana.

The Texas Company is preparing to make another test on State Bateman Lake 1, south of Morgan City, Section 21-16s-12e, St. Mary Parish. Cement retainer has been set at 10,930 feet. A drill stem test at 10,985 feet showed salt water.

In the South Crowley area, Acadia Parish, Humble Oil & Refining Company encountered trouble in Sarver 1, Section 35-10s-1e, at 10,272 feet. The drill pipe is stuck. This wildcat topped the Marginulina at 9630 feet. In gas sand at 10,191 feet, it attempted to blow out.

In the Gulf of Mexico, approximately one mile off the shore of Cameron Parish, Superior Oil Producing Company was running a temperature survey in State 1 at 7166 feet. Seven and five eighths-inch casing was set at 7166 feet after logging sands showing oil at 5110 to 5180 feet and from 6708 to 6711 feet. The hole will probably be drilled deeper.

After being shut down for several weeks, Jefferson Lake Oil Company opened Lake Peigneur 414, 12s-5e, Jefferson Island dome, Iberia Parish, and it flowed for 1½ hours and then died again. The well was drilled to 7071 feet, plugged back, and perforated from 6570 to 6576 feet.

Two Log Oil Sand

Northwest of Welsh field, Jefferson Davis Parish, Humble Oil & Refining Company's Stegall 1, Section 20-9s-5w, was down to 7688 feet in sand at the end of the week after logging another broken formation showing oil at 7494 to 7514 feet. The first sand was logged at 6989 to 7000 feet.

Amerada Petroleum Corporation and Louisiana Land & Exploration Company were coring in shale below 10,300 feet in South Coast Corporation 1, Raceland area, Lafourche Parish, last week after logging salt water sands below the oil sand, which was logged at 10,185 to 10,222 feet. Salt water sand was found from 10,222 to 10,234 feet. This is the second oil sand logged in the wildcat, the first being at 7238 feet.

The first 10,000-foot test for Lake Long field, Lafourche Parish, is Fohs Oil Company and Pilgrim Exploration Company's State 3, 1320 feet north of the discovery well. Last week the well was down to 10,050 feet in shale and was expecting to pick up a new

SOUTH LOUISIANA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
POTASH—		
Humble, Orleans Levee Board 22..	*	906
Orleans Levee Board 24.....	*	1207
Orleans Levee Board 26.....	*	761
Orleans Levee Board 27.....	*	1055
Orleans Levee Board 29.....	*	738
PINE PRAIRIE—		
Schlicher Prod. Co., Perkins 1.....	*	3993
SULPHUR—		
Union Sulphur, Fee 853	208	4730
WEST HACKBERRY—		
Stanolind, M. Duhon 6	476	3095
CAMERON PARISH—		
Shell, Hanszen 1, Chalkey area, 22-12s-6w	*	lcn.

*Failures; †Junked; ¶Million cu. ft. gas.

About This
Merry Christmas Business!

Some folks wait until December 20th to start thinking about Christmas and what they can do for their friends and customers. But we've always figured that about January 1st was the time to ask ourselves this question: **"What can we do for these birds that will help them get their mits on the Long Green that makes for happiness at Christmas time?"** And the answer has always been: GIVE 'EM GOOD EQUIPMENT TO WORK WITH!

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SHREVEPORT LOUISIANA

Lake Charles—Houma—Converse
New Iberia—Rodessa—Monroe
Cotton Valley—Greggton
Houston

sand after this formation has been drilled.

Two drill stem tests on Loffland Brother's Fontenot 1, South Jennings area, Section 16-10s-3e, Jefferson Davis Parish, showed salt water. Casing was perforated from 8890 to 8892 feet with 40 shots and 340 feet of salt water recovered. The perforations were squeezed and the casing was again perforated with 40 shots from 8880 to 8890 feet. On a 11-minute test 25 barrels of salt water were recovered. A cement retainer was set at 8865 feet and perforations were squeezed. Cement was drilled out to 8882 feet and the well was then shut down.

Short String in Deep One

Gulf Oil Corporation is preparing to set a short string of five-inch casing in Lafourche Levee Basin District 7, Lake Hermitage field, Plaquemines Parish, at 9286 feet. The new casing will be set onto the seven-inch casing which was set around 8074 feet. A sand with a gas odor was logged at 9240 to 9247 feet and a sand with an oil and gas odor was encountered at 9252 to 9258 feet. Lafourche Levee Basin District 7 is the deepest well ever drilled at Lake Hermitage.

Gulf Oil Corporation announced its second location at the new Quarantine Bay field, Plaquemines Parish. State QQ 4 is 3860 feet south and 330 feet east of the northwest corner of Section 17-19s-17e. It is approximately 1220 feet south of the discovery well.

Humble Oil & Refining Company's Wurzlow 1, Lirette area, Section 32-19s-19e, Terrebonne Parish, was drilling in shale below 8460 feet last week after logging sand and shale showing oil from 8208 to 8225 feet.

Approximately 2½ miles southeast of Humble Oil & Refining Company's Ellender 1, which at one time was the deepest producing well in the world, Fohs Oil Company made location for State 1 in what is known as LaTerre area. State 1 is 1980 feet east and 11,560 feet south of the southeast corner of Section 32, but in Section 41-19s-19e, Terrebonne Parish.

Natural gasoline output increases in October

A further slight increase in natural gasoline production in October brought output to 185,556,000 gallons for the month as compared with 179,424,000 gallons in September, it was disclosed December 9 by the monthly report of the Bureau of Mines.

Daily average production for the month was 5,986,000 gallons which, while only 5000 gallons above the September figure, was 797,000 gallons greater than the October, 1936, average. The most notable increases, the bureau said, were in the Appalachian and Panhandle fields.

Withdrawals from stocks continued at a material figure at both refineries and plants and terminals, in response to the seasonal trend in blending, the report showed. Stocks at refineries dropped from 135,534,000 gallons September 30 to 119,364,000 gallons at the close of October, and those at plants and terminals from 128,142,000 gallons to 109,284,000 gallons.

Jefferson area gets "divorce" from Rodessa field.

* * *

Work in Miller County's Rodessa area falling off.

Shreveport. — The Texas Railroad Commission took definite action last week to designate the Jefferson area in Marion County, Texas, as a separate and distinct field from Rodessa. The commission's action followed presentation of data by the Harrison and Marion Counties Oil and Gas Association in which it was claimed the two fields are separate and distinct.

Absence of the Dees and Young sands, which are the main producing horizons in Rodessa proper, were pointed out by the group seeking the differentiation of the fields. This group also showed that the Henderson sand, present at Jefferson just above the Gloyd, is not found in the Cass County part of Rodessa. A non-productive area in the H. Holbert and William Edmonson surveys was pointed to as a clinching argument that the pools are separate. Under the new differentiation the Lodi nose in the A. de los Santos Coy Survey, will still be regarded as a part of Rodessa.

The commission called a hearing January 15 to be held at Jefferson, to discuss allowables for the Jefferson area and promulgation of operating rules.

Heading the Harrison and Marion Counties Oil and Gas Association is David J. Flesh of Shreveport, who was associated with Holcomb, Thomason & Hootkins in drilling the discovery well at Jefferson, the Lizzie Henderson 1, R. Bennington Survey.

Marion County now has 38 producing wells, including those at Lodi and Jefferson. Three new wells were completed last week, two in the Jefferson nose.

The latter wells are Shell Petroleum Corporation's Cook et al 1, R. Bennington Survey, completed at 6084 feet flowing 545 barrels in 24 hours, with a gas/oil ratio of 557 to 1. The gauge was taken on quarter-inch choke. Gloyd saturation was logged from 6063 to 6070 feet and from 6061 to 6077 feet; elevation is 289 feet. Seven-inch casing was cemented at 6044 feet. The same company completed Lizzie Henderson 1, R. Bennington Survey, which gauged 256 barrels in 24 hours through quarter-inch choke at 6026 feet having logged Gloyd saturation at 5989 to 5995 feet, 7-inch casing being cemented at 5981 feet; elevation is 232 feet.

Two locations southwest of previous production at Lodi, Gulf Oil Corporation completed M. Grubaugh 1, A. de los Santos Coy Survey, flowing 268 barrels on first 10-hour gauge flowing through ⅜-inch and ½-inch chokes. Total depth is 6127 feet.

Between the Lodi and Jefferson areas H. B. Turner and associates' Scuddy 1, John Hanks Survey, was coring below 5875 feet after logging base of anhydrite at 5779 feet.

Miller County Falls Off

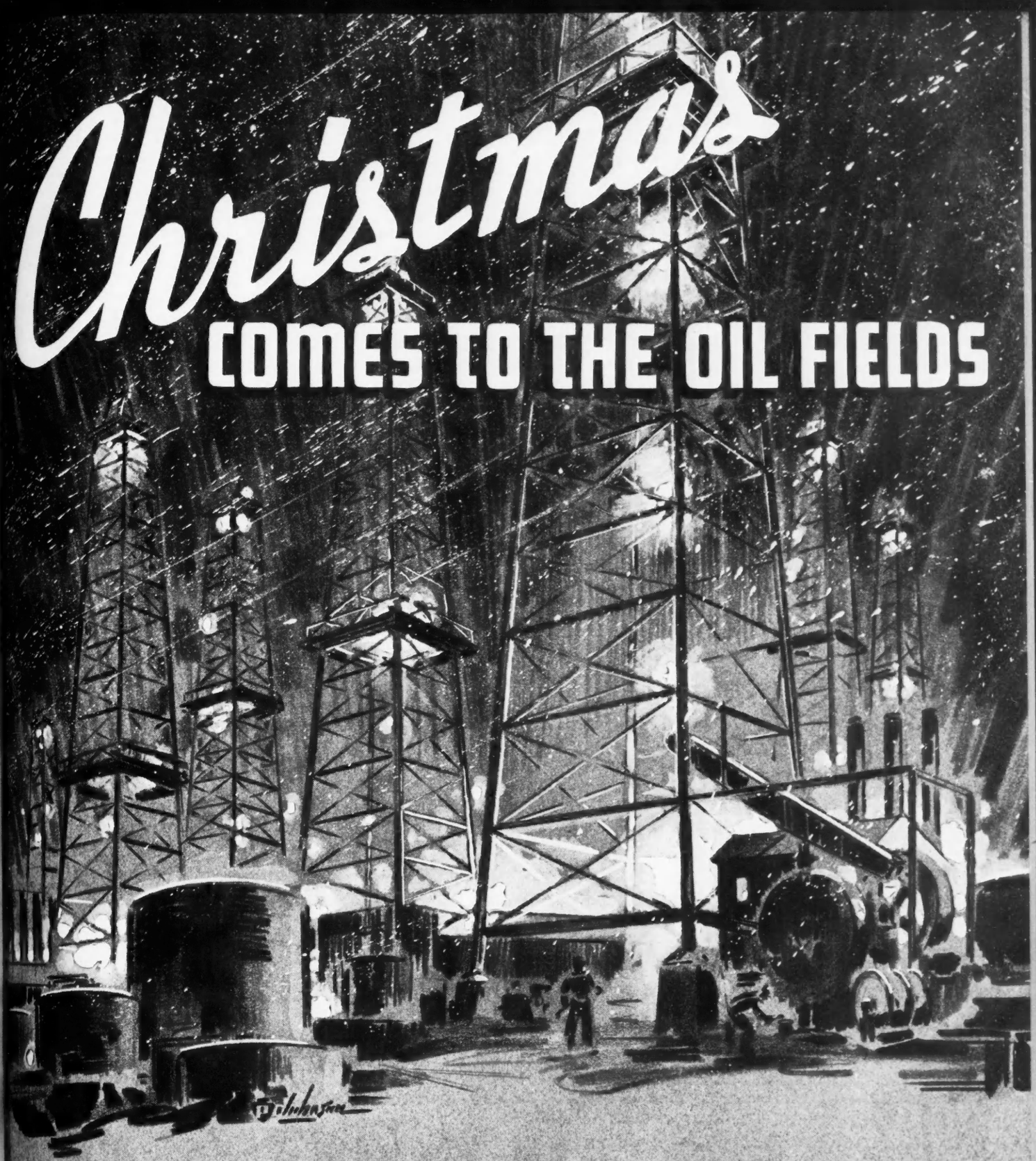
Activity in the Miller County, Arkansas, end of Rodessa has dropped sharply during the last fortnight and only 1 new location was announced there last week. This end of the field where there are now 53 producers has only 13 drilling operations, 2 derricks and 1 active location. The "play" there has gone southward across the Louisiana line into Sections 2 and 3-23n-16w, where there are 8 active drilling operations. A good well in that "trend"

NORTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BOSSIER PARISH—		
Producers O&G Co., Hill Est. 1, 8-17n-11w	*	1090
CADDO PARISH (Pine Island)—		
L. F. Davis, Stiles 2, 17-21n-16w	50	1023
Magnolia, Robertshaw 28, 23-21n-15w	118	1650
Marine Expl. Co., Herold 1, 10-21-16w	†	3206
Orr et al, Acme 1, 15-21n-16w	*	1902
Stewart-Williams, E. A. Connell 2, 10-20-15w	*	1360
Texas Co., Caddo Levee Bd. A-1, 33-21n-16w	*	2239
CADDO PARISH (Rodessa)—		
F. W. Burford, Cleveland 2, 2-23n-16w	936	5980
R. A. Terry 4, 2-23n-16w	¶5 & 50	6049
Standard, McCoy 4, 10-23n-16w	484	5964
Trippett et al, Sharpe 1, 4-23n-16w	132	6051
CLAIBORNE PARISH (Lisbon)—		
Scout Oil Co., English 2, 30-21n-4w	1500	5162
Vaughn & Marr, Eppinger 2, 29-21n-4w	1400	5134
SABINE PARISH—		
Fox & Phillips, Cook Land Co. 1, 1-9n-12w	*	3655
Larry Romine, La. Long Leaf Lbr. Co. 1, 7-5n-12w	*	5503
JACKSON PARISH—		
G. W. Zeigen, La. Cent. Lbr. Co. 5, 13-14n-2w (sec. completion)	*	2812
OUACHITA PARISH (Monroe)—		
Hope Prod. Co., Cole 12, 42-19n-4e	¶2¼	2166
RED RIVER PARISH—		
W. K. Williams, Pollock 1, 33-13n-11w	10	2500
SABINE PARISH (Zwolle)—		
Gold Oil Co., Darby 1, 21-7n-11w	*	2586
UNION PARIHS (Monroe)—		
Southern Carbon Co., Grayling 22, 4-21n-4e	¶6½	2180
Union Prod. Co., Fee 68 (No. 1), 30-21n-4e	¶21	2135

*Failures; †Junked; ¶Million cu. ft. gas.

Christmas
COMES TO THE OIL FIELDS



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was completed last week by Freeman W. Burford in Cleveland 2, located 660 feet west of C 2-23n-16w, completed at 5980 feet flowing 39 barrels per hour through ½-inch tubing choke with tubing pressure 650 pounds and casing pressure, 1100 pounds. With elevation of 223 feet this test logged porous lime from 5944 to 5970 feet after logging the Mitchell sand from 5926 to 5931 feet.

The best well completed in a fortnight in Miller County was Tom Potter's Larry and Vance 2, NE NW SW 11-20-28, which flowed 914 barrels in 8 hours through open tubing with casing pressure 600 pounds, tubing pressure not gauged, after being acidized. Total depth is 6135 feet but casing was perforated at 6063-66 feet; 6092 to 6096 feet and 6104 to 6135 feet.

Bienville Well Dry Gas

H. L. Hunt and Seaboard Oil Corporation's Federal Land Bank 1, located 1320 feet north and 2640 feet east SWc 10-16n-6w, Bienville Parish, 1 mile south of the nearer of the two present gas-distillate wells in the Bear Creek area last week, gauged 6 million feet of dry gas with no distillate through ¼-inch tubing choke with tubing pressure 2650 pounds and casing 1000 feet of open hole, producing with 1000 feet of open hole, wit htotal depth of 7879 feet in what was identified as Travis Peak. The well will probably be deepened.

Previously the open flow capacity of the well had been estimated at 80 million cubic feet daily. This test logged porous lime from 7364 to 7377 feet that showed 100 millivolts and 25 ohms and from 7385 to 7394 feet with 60 millivolts and 37 ohms. Seven-inch casing had been set at 6867 feet; elevation is 296 feet. The well showed only a small amount of gas when perforated and tested at 6848-58 feet and 6848-64 feet.

Blanchard Gas Well

A. O. Olsen and associate's R. T. Scharpe 1, C W½ NW 15-18n-16w, Blanchard area, Caddo Parish, which was acidized at 5624 feet, showed 12 to 15 million feet of gas daily and is shut in for gauge. Hunter & Hurley's N. B. Stoer 2, C SE SW 10-15n-15w, Caddo Parish, wildcat is listed as an abandoned location, as is Howard M. Jones' Desha Lumber Company 1, C NE SE 17-13n-11e, Tensas Parish.

A new wildcat location was made in Madison Parish, northeast Louisiana last week by Continental Oil Company at Singer Manufacturing Company 1, C NE NE 3-15n-11e.

After using 2000 gallons of acid, Scout Oil Company's English 2, C N½ SW SE 30-21n-4w, Lisbon field, Claiborne Parish, was completed at 5162 feet, with 10 feet of porosity, flowing 71 barrels the first hour through 24/64-inch tubing choke with casing pressure 25 pounds and tubing pressure, 300 pounds.

There are 14 drilling operations under way in the Cotton Valley lower Marine field, Webster Parish.

Magnolia Petroleum Company's Sexton 1, C SW NE 32-23n-9w, Webster Parish, lower Marine test for the old Shongaloo field was drilling sand last week at 727 feet.

Shreveport. — Twenty-two drilling permits were authorized last week by the minerals division, Louisiana Conservation Commission of which 9 were for North Louisiana parishes as follows: Caddo, 4, none in Rodessa; Claiborne, 3, all in Lisbon; Ouachita, 1; and Webster, 1. The 13 in South Louisiana were divided among the following parishes: Acadia, 1; Ascension, 1; Calcasieu, 1; Cameron, 1; Evangeline, 1; Jefferson Davis, 1; Plaquemines, 5; St. Mary, 1, and Terrebonne, 1.

ARKANSAS FIELDS

Fourth producer from Jones sand in at Schuler

El Dorado, Ark.—The "Jones sand" of the lower Marine horizon at Schuler, Union County, added its fourth producer last week when Edwin M. Jones' Marine Oil Company 2, SW NW SE 17-18-17, which had topped this producing horizon at 7581 feet, was completed flowing 1135 barrels in 24 hours through 1⅝-inch choke with tubing pressure 150 pounds and casing pressure, 575 pounds. Temperature was 106 degrees. The yield showed .4 percent basic sediment.

The well was completed after casing

ARKANSAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
COLUMBIA COUNTY—		
Tidewater Associated & Seaboard, C. N. Crumpler 1, 24-17-19.....	†	7563
MILLER COUNTY (Rodessa)—		
W. L. McClanahan, Eaton 1, 12-20-28	168	6104
McMurray et al, Thomas A-1, 13-20-28	40	6150
Tom Potter, Larry & Vance 2, 11-20-28	2000	6135
Red Iron & Parks, Toombs 1, 11-20-28	90	6189
PIKE COUNTY—		
Beckwith & Cress, Hendricks 1, 16-8s-25w	*	353
UNION COUNTY (Urbana)—		
Ark. Southern Oil Co., Simmons 2, 15-18-13	55	2288
UNION COUNTY (Schuler)—		
Edwin M. Jones, Marine Oil Co., 2, 17-18-17	1135	7950

*Failures; †Junked; ¶Million cu. ft. gas.

HOUSTON
Cotton Exchange Building

LOS ANGELES
Associated Realty Building

EL PASO
First National Bank Building

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AUDITS
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was perforated from 7585 to 7607 feet. Old total depth is 7950 feet and casing had been cemented at 7679 feet.

The discovery well of the lower Marine at Schuler, Edwin M. Jones, Marine Oil Company 1, Section 17-18-17, completed several months ago and which had shown varying amounts of salt water, has cemented off perforations and plugged back to 7529 feet. Total depth was 7616 feet.

Gauges made last week on other lower Marine wells in Schuler showed Alice Sidney Oil Company's D. S. Morgan 2, Section 18-18-17, making 1959 barrels in 24 hours; and Phillips Petroleum Company's Ed Gan 1, SW SE NE 18-18-17, making 1833 barrels in 8 hours, 5 of which was through open tubing and the other 3 through 1-inch choke. The well was shut in the other 16 hours while bottom-hole tests were made.

Lion Oil Refining Company's Edna Morgan A-1, Section 18-18-17, the Permian lime's lone gas-distillate well at Schuler, gauged 644 barrels of distillate in 24 hours flowing through 27/64-inch tubing choke with tubing pressure 2500 pounds, and casing pressure, 2600 pounds.

Lion Oil Refining Company's Marine Oil Company 1, NE SE SW 17-18-17, which has shown for a producer in the Jones sand, logged top of the Permian lime at 7624 feet and cored from 7630 to 7645 feet where 12½ feet of oolitic lime slightly porous was recovered. Operators later were reaming down to set final casing string. Edwin M. Jones' Marine Oil Company 4, SE SW SE 17-18-17, was coring sand at 7575 feet. The southern outpost test at Schuler, Lion Oil Refining Company's Justiss 1, NE NW NE 19-18-17, was drilling shale at 7475 feet. Marine Oil Company's Justiss 2, SWc Lot 7, NW 18-18-17, with elevation of 254 feet, recovered oil sand and shale in a core from 7540 to 7560 feet, reamed out and was coring ahead. Six other tests are below 4500 feet at Schuler, 4 of them being below 6000 feet.

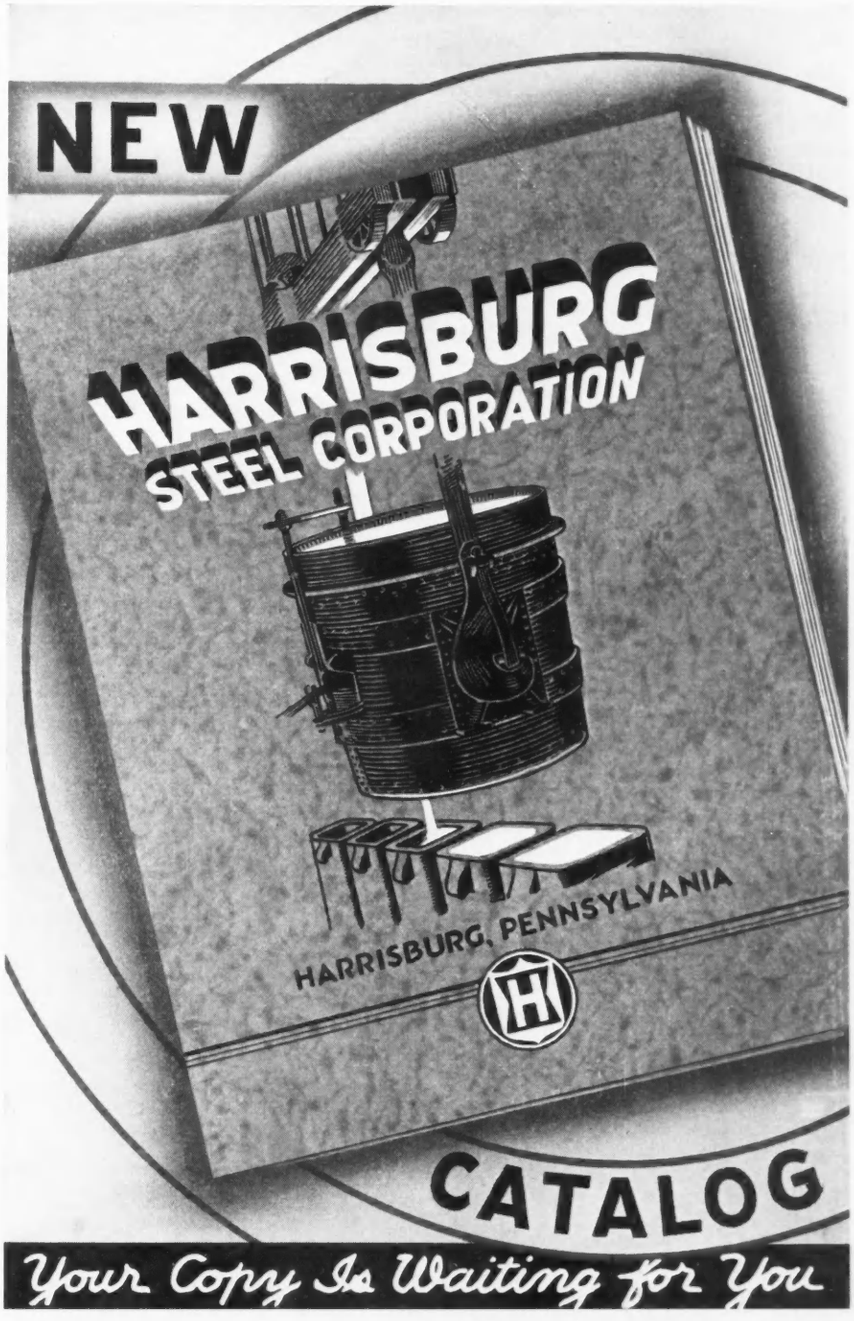
El Dorado.—Only one drilling permit was authorized last week by the Arkansas Board of Conservation. This permit is W. L. McClanahan's Capps Brothers C-1, 330 feet north and east SWc E½ W½ fractional Section 14-20-28, Miller County.

Mississippi test drills into salt

Jackson, Miss.—Southern Natural Gas Company's Angelo Williams 1, NE NW 35-6n-4w, Hinds County wildcat, near Edwards, which recently logged what was identified as a cap rock over a salt dome at 2730 feet, last week entered the pure salt at 3085 feet and later was drilling in salt at 3248 feet. Elevation is 182.7 feet.

S. P. Borden of Shreveport is drilling contractor on the well.

It is the second interior salt dome found in Mississippi within a year, one having been found last January by Sun Oil Company and associates in Section 28-4n-15w, Lamar County. Joe Modisett of Shreveport was drilling contractor on that test.



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ROCKY MOUNTAIN FIELDS

Lance Creek developments take critical turn.

* * *

Tensleep saturation heralds Hamilton Dome extension.

Casper, Wyo.—Lance Creek development took a critical turn this week with failure of the East Lance Creek unit test in the deeper sands, an extension of the Minnelusa pool to the north, and a definition of the pool on the east in the field proper. Other developments included the completion of the first well from the two deep sands of the field.

Continental Oil Company's Leach 1, SW NE NE 29-36n-64w, four miles east of the nearest Minnelusa production and five miles east of the Lance Creek Sundance area, is plugging back from 6434 to 3900 feet to test an oil and gas show in the Lakota sand. The Basal Sundance series was topped at 4178 feet and carried water in the three sands, while the Minnelusa series, with depths unreported, was uncommercial.

Limits of the Minnelusa pool were extended a mile northwest in J. M. Huber Corporation's Midwest 2, NE SE SW 27-36n-65w, which flowed 500 barrels of oil daily on a drill stem test at 5470 feet. It is expected to stimulate considerable drilling on the north side of the field.

Ohio Oil Company's Leo 1-OPC 7, NWc NW SE 35-36n-65w, defined east limits of the Minnelusa in the field proper when it completed for 14 barrels of oil and 38 barrels of water daily on the pump. Hole bottoms at 5264 feet.

The first completion in two sands in Lance Creek is Ohio Oil Company's Converse Sheep Company 5, SE SW 32-36n-65w, which flowed 150 barrels daily initial on recompletion in the Sundance at 3702-62 feet and 850 barrels from the Minnelusa at 4452 feet, for a combined initial of 1000 barrels. The well is flowing through the casing and around the tubing from the Sundance and through the tubing from the Minnelusa.

Continental Oil Company's Schuricht 6-B, SW SW SE 6-35n-65w, missed production in the Basal Sundance, apparently defining that sand on the west side of the field, and is drilling ahead for the Minnelusa. The well is an east offset to the Cobb well, which had water in the Sundance but made a large Minnelusa well.

Italo Petroleum Corporation's Phebus-Government 1, NW NW SW 11-44n-98w, apparently will extend the Hamilton Dome oil field, Hot Springs County, Wyoming, to the northwest. The test cored oil saturation in Tensleep sand at 3200 feet, and is fishing for stuck drill stem. It is three-quarters of a milefrom the nearest producer. The company is reported preparing to start another well immediately in the field on a government permit to protect the land for extension to December 31, 1940.

Little Oil In Deep One

In Badger Basin oil field, Resolute Oil Company's third deep well on the structure, Government 1, CNE NE 20-57n-101w, is swabbing 20 barrels of oil daily and testing in the Frontier formation at 8670 feet. Formation was shot with 500 quarts of nitroglycerine.

A. J. Hardendorf, of the Fredell Construction Company, of Houston, Texas, this week purchased the stock of the Woodson Oil Company, which controls 830 acres of producing oil lands in the Hudson field of Fremont County, Wyoming.

New developments ease Montana markets

While the public meeting of northern Montana oil operators ended after six days of hearings, with a postponement until January 4, three factors loom up that may possibly ease the Montana over-production condition to the point where state proration will be unnecessary.

The Montana railroad and public service commission announced effective December 8 a reduction to 17 cents per hundred-weight on crude oil shipped from Cut Bank to Billings. This is a cut of 6 cents when compared with former rate of 23 cents per hundredweight, and will allow Cut Bank crude to compete with Wyoming crudes shipped north into the southern Montana refining district. The refiners, it is expected will take about four car loads per day at the start and the figure may increase. The rate is effective until April 1, 1938.

Reported, but unconfirmed, is the news that a deal has been closed by Cut Bank independent operators with Globe Oil & Refining Company to supply the company with 4000 barrels of oil daily from the field. The Globe, it understood, will erect a refinery either at Shelby or in North Dakota. The company distributes refined products in the Dakotas.

Also reported is the contemplated construction by Yale Oil & Refining Corporation of a 1000-barrel plant at Kalispell, Mont. The refinery will take crude exclusively from the Cut Bank field. Plant is expected to be ready for operation by March 1, 1938.

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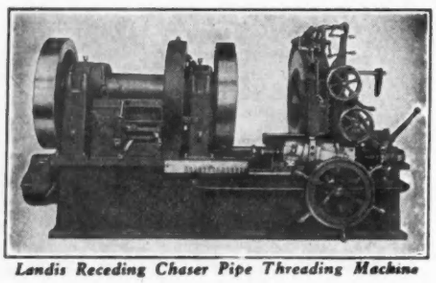

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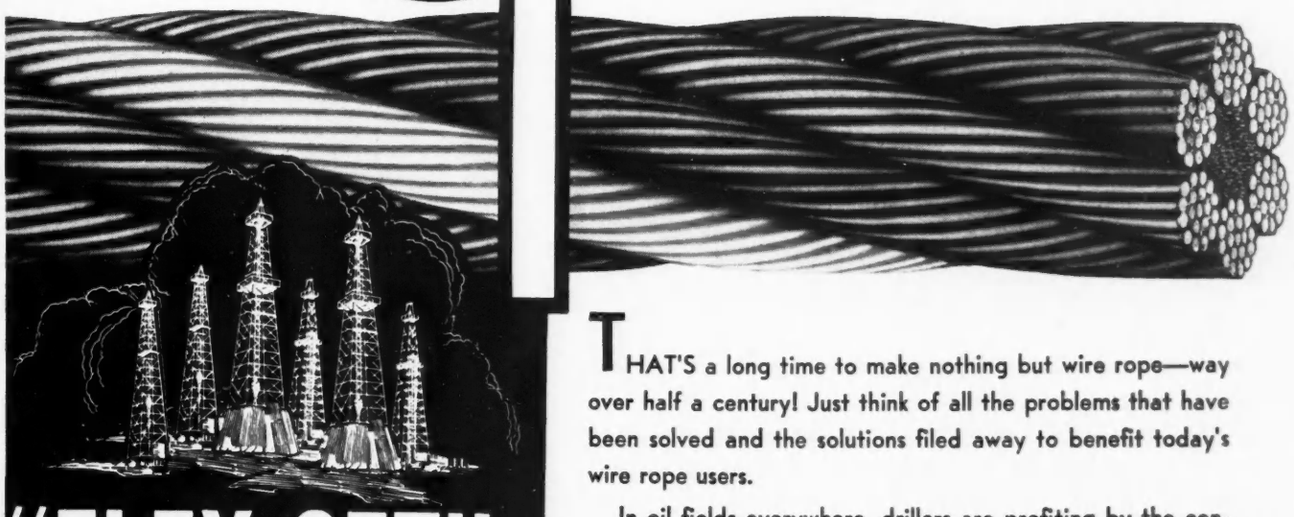
CHARLIE HARTER

MOUNTAIN STATES Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
MONTANA		
TOOLE COUNTY (Kevin-Sunburst Field)—		
Hannah-Porter, Benjamin 2, csw 18-33n-1w	¶2	1353
S. F. Scotland's McNamer 2, n½ nw sw 29-35n-3w	100	1800
Hannah-Porter Oil Co., Benjamin 2, csw 18-33n-1w	¶2	1240
WYOMING		
CARBON COUNTY (Bunker Hill Field)—		
Ohio, Brimmer 1, cse se 30-27n-89w	*	2010
NIOBRARA COUNTY (Lance Creek-Minnelusa)—		
Continental, Otto Rohlff 8, se se 31-36n-65w	165	5242
WERTZ FIELD—		
Sinclair-Wyoming, Wertz 11-A, se ne nw 7-26n-89w	285	5987
WESTON COUNTY (Osage Field)—		
Osage Oil Trust, Fee 27, cnw se 14-46n-64w	50	1789
COLORADO		
BOULDER COUNTY—		
Boulder Prod. & Dev. Co.'s Harlow Estate 1, se ne 32-2n-70w	*	765

*Failures; †Junked; ¶Million cu. ft. gas.

61 YEARS



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V-13R-2

MICHIGAN FIELDS

New Traverse lime pool looms in western area

★ ★ ★

Closing lake shipping congests Clayton crude

Mt. Pleasant, Mich.—Of 11 completions in Michigan this week 5 were failures on widely scattered wildcat tests, all of which tested the Dundee limestone.

Interest centered this week in Bentley Township, Gladwin County (17n-2e), where McClanahan Oil Company's Connoly 1, Section 35, checked the Dundee at 3388 feet and logged an oil show 57 feet in the lime. Completion was delayed with a fishing job, however. The McClanahan test is more than 3 miles southeast of the Hand-Smart discovery well in Section 29 of Bentley Township.

With one well producing 65 barrels on the pump three locations north and the same distance east of the discovery, the third well in Bentley was being swabbed into production this week. Fortney Oil Company's Smart 1, NE NW NE Section 29, two locations east of the discovery, logged Dundee lime at 3,402 feet, 4 feet higher than the Hand-Smart, and bottomed out at 3,531 feet. It swabbed 25 barrels on a 20-hour test and will be tubed and acidized.

Possibility of opening a new Traverse lime producing horizon in West Michigan loomed this week when Morris Sutherland's Brandt 1, Section 36-5n-14w, Ottawa Township, picked up the Traverse at 1637 feet and an oil show at 1638-40 feet, where casing is now being set. It is several miles northwest of the Salem field, Allegan County, where the Traverse is the producing zone.

Figures compiled by the Oil and Gas Association of Michigan this week showed a decline in production from an all-year high in October of 1,738,153 barrels up to 1,572,233 barrels in November. Out of 14 fields, only two showed gains, the Salem field in Allegan County and the West Branch field in Ogemaw County.

Buckeye, Gladwin County, declined from 833,109 barrels in October to 730,869 barrels. Second largest producing district is Porter-Jasper in Midland County with 264,806 barrels last month.

The 1738 wells in the state averaged 52,406 barrels in November daily as against 56,069 the previous month. Total 11 months production now stands at 14,609,523 barrels.

Closing of the Great Lake shipping season last week resulted in creating an acute marketing situation in the Clayton field, Arenac County. Virtually all crude fro mthis area has been marketed by shipping by railroad to Bay City and then via lake tankers to Buffalo and Toledo. Less than 500 barrels a day is now being moved from the field, which has a potential of about 5500 barrels daily. Pipe line officials said freight shipment represents a 10 cents per barrel increase over lake movement. Operators are opposed to any cut in the present $1.09 price, lowest price in the state, or about a 15-cent differential under all other grades except West Branch, which is the same.

MICHIGAN
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ALLEGAN COUNTY—		
Knickerbocker Oil Co.'s Clark 2, se se se 16-4n-13w	500	1627
Muskegon Oil Co.'s Sebright 3, nw se ne 21-4n-13w	250	1570
ARENAC COUNTY—		
G. Western Oil Co.'s Dobler 5, se ne sw 10-20n-4e	70	2620
CLARE COUNTY—		
Witmer Oil Co.'s Palomar 1, c 2-18n-5w	*	4125
GLADWIN COUNTY—		
Chapman Oil Co.'s State 1, c n½ nw nw 33-17n-2e	*	3660
Louis Rose's Brahone 1, ne ne se 9-18n-1w	250	3661
GRATIOT COUNTY—		
Turner Pet. Co.'s Wiley 1, c w½ nw nw 5-11n-3w	*	3290
ISABELLA COUNTY—		
Pure Oil Co.'s Ryckman 1, c s½ s½ ne 33-15n-5w	180	3705
MIDLAND COUNTY—		
C. W. Teater's Hitsman 1, nw nw sw 13-14n-1w	*	3801
OGEMAW COUNTY—		
Ide & Glavin's Schubert 2, sw ne nw 19-22n-2e	96	2764
TUSCOLA COUNTY—		
Frank Norton's Voorhees 1, c ne nw 8-12n-11e	*	3105

*Failures; †Junked; ¶Million cu. ft. gas.

Michigan to tighten up on brine disposal

Mt. Pleasant, Mich.— Disposal of brine should be included as part of the regular production costs of leases and taken into financial account and prepared for when development starts, Milton P. Adams, engineer and executive secretary of the State Stream Control Commission, told a group of 70 Michigan operators Monday, in a special brine conference.

Adams told operators that the "State will no longer accept ponding of brine as a satisfactory method of disposal. It is our objective to bring about disposal of all oil field brine by the injection method, when it is not feasible to pipe it to a chemical plant, which already has an approved waste disposal method."

The session was called primarily to discuss practical measures for new fields. Adams revealed that while new fields this year are not major brine producers so far that the following amounts of brine so far have developed:

Buckeye field in Gladwin County, 800 barrels, ponding only method of control.

Clayton field in Arenac County, 500 barrels, ponding only method of control.

Sherman field, Isabella County, 1428 barrels injected into shallow formations, 45 barrels ponded. These are daily figures.

Adams pointed out that in the older Porter area, Midland County, 10,000 barrels of brine is being piped to Dow Chemical Company in Midland, 1686 barrels injected, and 1000 barrels ponded. In the old Crystal area, Montcalm County, 12,752 barrels of brine is injected into formations and 2886 barrels ponded.

Figures compiled by Dr. R. A. Smith, state geologist, show that for each 1.6 barrels of oil produced in October, 1 barrel of brine was produced in Michigan oil fields. He stressed the need of a broad and long range program for brine control. Michigan fields averaged 40,206 barrels of brine to 58,368 barrels of oil daily in October, he said.

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CALIFORNIA FIELDS

Bell 100 may be world's second deepest producer.

* * *

Developments appear to indicate Kettleman revival.

Los Angeles.—Possibility of Union Oil Company of California putting on production the second deepest producer in the world loomed at Santa Fe Springs this week as preparations were being made to swab out 99 feet of open hole bottomed at 11,314 feet in Bell 100.

Cemented on a plug set at 11,216 feet, 1180 feet of 3½-inch blank liner was allowed to extend up into the 6⅝-inch casing which was set at 10,217 feet. The last part of this hole was drilled with 2-inch pipe and 9993 feet of 2½-inch tubing was run. Fifty barrels of mud weighting material was placed on bottom after the well had been cleaned out, the mud weighting material being placed before tubing was run. The next procedure is swabbing, but since so much mud must be removed, final outcome of the test may be delayed several days.

Union Oil Company already holds the record for the deepest producer in the world with its recent discovery well of a new field in Kern County.

Other operators at Santa Fe Springs have been waiting for completion of the well to guide them in future operations. Many old wells in the field have sufficiently large holes at bottom to permit them to drill much deeper, if the Union well proves up a new deep zone.

To Test at Kettleman

The very interesting test on the middle dome, Kettleman Hills, Temblor Oil Company's Bunting 1, stopped drilling at 9140 feet and is getting ready for a production test. A string of 6⅝-inch was cemented at 8050 feet and 1000 feet of 4¾-inch blank liner was landed and cemented at 8960 feet. Hole is being cleaned out, after which tubing will be run. So far, little success has attended drilling on the middle dome, and it is possible that other wells did not go deep enough. Practically all of the middle dome is under lease, and if Bunting 1 makes a well, it will bring about considerable new work.

Kettleman North Dome Association's No. 4-18J, outpost test for the north dome, Kettleman Hills, is still trying to recover stuck drill pipe, with bottom of hole at 11,746 feet. This hole months ago picked up a good oil bearing zone slightly below 10,000 feet, and if present fishing job is unsuccessful, it is expected it will be plugged back and placed on production there.

As the result of the findings in the Kettleman North Dome's No. 4-18J, Superior Oil Company started drilling Huffman 5 to a greater depth. At last reports it was drilling at 10,371 feet, with showings fairly favorable. If Superior gets a good well, many wells in that area will be drilled deeper.

Another Cantua Creek Try

Western Gulf Oil Company, which has drilled three non-productive wells on its large acreage in the Cantua Creek area of Fresno County, has staked location for a fourth. Each of the three wells drilled showed some oil. S. P. Land Company 4 is 1830 feet north and 440 feet east from the southwest corner of section 3-17-15, or 800 north of S. P. Land Co. 3, which was drilled to 8531 feet.

The South Belridge area in Kern County is due for two new tests. Ohio Oil Company is rigging rotary for Ford 1, location being 1650 feet west and 330 feet south from NEc Section 6-29-22, east of the South Belridge productive area. Chico-Martinez Oil Company of Bakersfield has leased about 635 acres in Sections 1 and 2-29-20, and the first hole is to be drilled on Lot 6, Section 1-29-20, west of the field.

Two for Rio Bravo

Two new wells in the area surrounding the well which recently proved the Rio Bravo field in Kern County will be started at once. Superior Oil Company's Geisinger 1, is located 330 feet north and 330 feet east from west quarter corner of Section 35-28-25, or north of same company's Wagner 1, which has been rigged up. Southeast of the Union Oil Company's discovery well, Geo. F. Getty has staked location for a test to be drilled 990 feet north and 2310 feet west from SEc Section 35-28-21.

Deepest for Gato Ridge

At Gato Ridge in Santa Barbara County, O. C. Field Gasoline Corporation's Continental 2 has been completed on the pump at 4480 feet, being the deepest well ever drilled in this field. A string of 786 feet of 5¾-inch perforated liner was landed at 4474 feet. The well started pumping 400 barrels of oil, but since the last part of the hole was drilled with oil, it will be several days before its true production will be known.

In the Arvin area of Kern County, General Petroleum Corporation's Houchin 1, wildcat in Section 27-31-29, with bottom at 7928 feet, swabbed considerable 30 gravity oil. A string of 8⅝-inch was cemented at 7290 feet, and cemented again through perforations at 7360 feet. The zone from 7300 to 7350 feet was perforated and later reperforated. The well then started to flow at a rate of 250 barrels of 30 gravity oil, with very little water.

A close-in well being drilled by the Superior Oil Company at Greeley expects to pick up the Greeley oil sand very soon since it is correlating closely with Standard Oil Company of California's K. C. L. 11-7, Section 20-29-26, which picked up top of the Greeley sand at 7702 feet. Superior's Krause 1 is located 330 feet south and 330 feet east from NWc, Section 21-29-26. In this new field, Standard's K. C. L. 11-7, with bottom at 7815 feet, on a three-hour flow test was rated at 3500 barrels of 48 gravity clean oil. Greeley is one of the most recent discoveries in Kern County. Gas pressures in the field are high.

Los Angeles.—Three large Japanese tankers arrived at Long Beach and Los Angeles harbors December 15 to load approximately 250,000 barrels of crude and fuel oil for delivery to naval storage in Japan. The tankers were loaded at Union Oil Company, General Petroleum Corporation and Tide Water Associated docks.

CALIFORNIA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
KETTLEMAN HILLS—		
Kettleman No. Dome Assn. No. 34-J-43	1615	7960
ELK HILLS—		
Richfield, Crampton 3-H.A.	90	3015
KERN FRONT—		
Kern River Oilfields, No. 25-3-B	160	2051
McKITTRICK—		
Franco Western Oil Co., No. 14	175	2175
MIDWAY-SUNSET—		
C. C. M. Oil Co., No. 55	50	2742
Gibson Oil Co., O'Brien 5	100	2810
National Oil Co., No. 30	235	2192
Standard, No. 127-33D	250	2930
Texas Co., No. 28	20	3220
MOUNT POSO—		
Texas Co., Glide 6	50	1768
Summit Oil Co., Glide 1	*	2717
ROUND MOUNTAIN—		
Calif. Western Oil Co., No. 9	400	1969
TEN SECTION—		
Shell, K.C.L. A-36-30	3860	8199
No. A-8-28	*	8860
SANTA MARIA VALLEY—		
A. D. Mitchell, Wilson 1	700	4537
Pacific Western Oil Co., Hobbs 5	1200	4798
PADRE CANYON—		
C. C. M. Oil Co., Oak Grove 2	50	7828
ROUND MOUNTAIN—		
Crestmont Oil Co., Staley 1	*	1877
Los Angeles Const. Co., Olcese-Tavis 1	*	3700
TULARE COUNTY—		
J. F. Wilcox, Sears 1	*	887
DOMINGUEZ—		
Union, Callender 51	235	4350
EL SEGUNDO—		
Govt. Ref. & Gaso Corp., Copinger-Wallace 1	1950	7289
Wilshire, Elsie 9-1	1435	7208
Elsie 9-2	1650	7260
NORTHWEST LONG BEACH—		
Union, Oil Operators 3	305	4076
POTRERO—		
Tide Water Associated, Cypress 4	50	4301
WILMINGTON—		
Union Pacific, Offset 69	120	2884
Bankline Oil Co., D.H.C. 7	170	3462
Caminol Co., Com. 2-5	275	3660
General, Isco A-5	800	3500
Raleigh Oil Co., Patton 1	265	3646
LOST HILLS—		
Tide Water Associated, No. 9-C	*	1533
MOUNT POSO—		
Ring Oil Co., Lowden 2	*	1755
TEN SECTION AREA—		
Shell, No. A-8-28	*	8860
VENTURA COUNTY—		
So. Calif. Dr. Co., U.P.D. 2	*	3086

*Failures; †Junked; ¶Million cu. ft. gas.

IMPORTANT WILDCAT TESTS

ALABAMA

GREENE COUNTY—Greene County Dev. Co.'s R. C. Lett 2, se nw 5-21n-2e, sd 115 ft.

HOUSTON COUNTY — Rice O&G Co.'s Oakley Est. 2, se nw sw 9-3n-29e, arr set 7-in csg, td 4975 ft, Tuscaloosa.

MOBILE COUNTY — Grand Bayou O&G Co.'s J. A. Stafford 1, sw sw 24-7s-3w, lcn. J. C. Prine's King 2, ne ne 4-1n-4w, elev 135 ft, 10-in csg 300 ft, arr deepen 1100 ft (1100 ft s of No. 1).

ARKANSAS

CLARK COUNTY—M. M. Martin's C. L. Cabe 1, nw nw 14-10-20, dr 2730 ft red shale.

COLUMBIA COUNTY—Tidewater & Seaboard's C. N. Crumpler 1, nec sw 24-17-19, elev 282 ft, top lower Travis Peak 5420 ft, top lower red beds 7115 ft, top anhydrite 7500 ft, junked and abn, td 7568 ft.

CRITTENDEN COUNTY—Manning & Martin's Cartright 1, se nw sw 16-7n-8e, spd, dr 500 ft.

DALLAS COUNTY—L. S. Gist et al's Goodgame 1, se sw sw nw 26-10-16, sd 1720 ft.

DREW COUNTY—Sloan Wells et al's Hardy 1, sec nw 3-14-7, rur.

HEMPSTEAD COUNTY—Easton, May & Murdock's R. M. LaGrone 1, ne ne 5-12-26, sdtr, td 2944 ft.

LONOKE COUNTY—J. E. Russell's Gunter 1, se se 17-5-10, claim so 503-8 ft, repr rig 508 ft. Frank Silver's Chambers Est. 2, sw ne sw 17-2-7, wo 1500 ft.

MILLER COUNTY—F. F. Earles' General American Life Ins. Co. 1, se se sw 20-14-26, rur. Hearell & Burnett's Willie Wallace 1, se nw se 7-20-27, lcn.

OUACHITA COUNTY — Copenhaver Oil Corp.'s J. E. Evans 1, ne sw 20-11-19, sd 1730 ft. O. F. Whittaker's C. C. Guttry 2, se nw 21-15-19, arr set csg, td 2185 ft.

CALIFORNIA

FRESNO COUNTY

JACALITOS CREEK—Dauphin Dev. Co.'s Boone 1, 20-21-14, dr shale 3320 ft.

PANOCHE—J. A. Gautier's Hubbard 1, 12-14-11, td 510 ft, rigging heavy equip.

JACALITOS HILLS—Jacalitos Pet. Co.'s Associated 1, 14-21-15, dr shale 5518 ft.

HURON—Pure's S.P. 1, 31-18-17, dr shale 9075 ft.

CIERVO—Superior's No. 1, 20-16-13, rur.

TRANQUILITY—Union's Nicholson 1, 17-15-15, rur.

CANTUA CREEK—Western Gulf's S.P.L. 4, 3-17-15, lcn.

KERN COUNTY

MIDWAY SUNSET—American Empire Oil Co.'s No. 1, 20-31-24, rur.

DEVIL'S DEN—Amerada's Beer 5, 22-26-19, dr brown shale 5245 ft. Little Major Oil Co.'s Jester 1, 36-25-18, lcn, cable tools.

CUYAMA VALLEY—Calif. Prod. Co.'s No. 4, 6-10-24, dr.

BELRIDGE AREA — Chico-Martinez Oil Co.'s Exeter 1, 1-29-20, lcn. Ohio's Ford 1, 6-29-22, spd 12/9, dr. General's St. Helens 1, 12-28-20, dr 5122 ft.

ROSEDALE—Continental's K.C.L. B-1, td 10,205 ft, redr at 8361 ft.

ROUND MOUNTAIN—Crestmont Oil Co.'s Staley 1, 8-28-29, td 1877 ft, gray sand, top Vedder 1859 ft, abn. Shell's Olcese-Lilly 2, 21-28-29, lcn. Los Angeles Cons. Co.'s Olcese-Tavis 1, 4-29-29, abn 3700 ft.

ARVIN—General's Houchin 1, 27-31-29, td 7928 ft, perforated 7300 to 7350 ft, swabbed 30 gravity oil, no water, to reperforate same point.

McVAN—Golden Bear Oil Co.'s No. 1, 10-27-27, lcn. No. American Oil Cons. Co.'s No. 1, 26-27-27, lcn.

GRAPEVINE—Honolulu Oil Corp.'s Honolulu-Associated-S.P. 33-1, 33-12-19, dr shale 4376 ft. Ohio's T.R.C. D-2, 23-11-19, td 4215 ft in sand, to run formation tester. Universal Cons. Oil Co.'s Tejon 1, 3311-19, td 4450 ft, top oil sand 4432 ft, to test.

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandoned well.*	owdd—*old well drilling deeper.*
‡—*salt water (completions).*	owpb—*old well plugging back.*
†—*junked and abandoned.*	pb—*plugged back or plugging back.*
¶—*million feet of gas.*	r—*reaming.*
abd—*abandoned.*	rog—*rig on the ground.*
bbls—*barrels.*	rur—*rigging up rotary tools.*
br—*building rig.*	rust—*rigging up standard tools.*
b.s.—*basic sediment.*	sd—*shut down.*
csg—*casing.*	sdtr—*sidetracking.*
co—*cleaning out.*	sg—*show gas.*
dd—*drilling deeper.*	si—*shut in.*
dk—*derrick.*	so—*show oil.*
dr—*drilling.*	so&g—*show oil and gas.*
fsg—*fishing.*	spd—*spudding.*
ft—*feet.*	sr—*straight reaming.*
hfw—*hole full of water.*	sw—*salt water.*
in—*inches.*	td—*total depth.*
lcn—*location.*	ur—*underreaming.*
m—*milling.*	wih—*water in the hole.*
mim—*moving in materials.*	wo—*workover.*
mit—*moving in tools.*	wocs—*waiting on cement to set.*
mot—*milling on tools.*	wosr—*waiting on standard rig.*
n, s, e, w—*north, south, east, west.*	
oih—*oil in hole.*	

CALIENTE CREEK — Geo. W. Johnson's No. 1, 33-29-30, dr 155 ft.

McKITTRICK—Rocima Oil Co.'s No. 1, 20-30-22, dr. Par-Mer Oil Co.'s Par-Mer 1, 6-31-22, dr 2061 ft.

MOUNTAIN VIEW—Section Six Oil Co.'s Johnston 1, 6-31-29, dr 7216 ft.

STRAND—Shell's K.C.L. A-72, 14-30-25, dr shale 5510 ft.

SAN EMIDIO—Shell's No. 4-26, 26-11-22, dr.

TEN SECTION—Standard's K.C.L. 15-1, 27-30-26, dr 8010 ft.

SEMITROPIC—Standard's Randolph Com. 2, 14-27-23, dr 8006 ft.

McGUNDEN—Standard's Routzong 1, 2-30-28, dr 5638 ft.

MOUNT POSO—Summit Oil Co.'s Glide 1, 31-27-28, td 2717 ft, top Vedder 2693 ft, abn.

GREELEY AREA—Superior's K.C.L. 9, 3-30-26, td 7870 ft, perforated 7562 to 7568 ft, swabbed, fluid rose 800 ft, all oil.

SOUTH MARICOPA—Texas Co.'s Pioneer 1, 33-11-23, dr 5561 ft.

KERN FRONT—Vernon & Wheeden's No. 1, 28-28-27, rur.

MISCELLANEOUS

GLENN COUNTY—Ohio's Willard 1, 18-20-2, dr 2546 ft.

HUMBOLDT COUNTY—Texas Co.'s Eureka 2, 22-3-1, td 7708 ft, plug 5737 ft, gas well, shut in.

KINGS COUNTY — Pyramid Prod. Co.'s Retherford 1, 27-24-18, dr shale 1420 ft, dips 45 degrees.

MERCED COUNTY—Amerada's Carano 1, 19-10-11, dr brown shale 6720 ft.

SAN JOAQUIN COUNTY—Standard's Weil-Zuckerman 2, 25-2-4, dr 6643 ft.

SAN MATEO COUNTY—Wilshire's Cowell 1, 20-6-5, (Half Moon Bay) dr 5400 ft.

SOLANO COUNTY—Tracy Dr. Co.'s Hanson 2, 36-4-2, dr 1132 ft.

TULARE COUNTY—Standard's Morris 1, 36-24-23, dr shale 10,766 ft. J. F. Wilcox's Sears 1, 29-24-28, td 887 ft, top slate 865 ft, abn. Si Wicker's No. 1, 1-24-27, lcn.

SANTA BARBARA COUNTY—O. C. Fields Gaso. Corp.'s Continental 2, 4-8-32, td 4480 ft, ran 786 ft of 5¾ in all perforated, to test on pump.

MONTEREY COUNTY—Amil A. Anderson's Hillman 1, 15-24-14, dr 2925 ft. Elba Oil Co.'s Elba 2, 6-12-1, rig.

SAN LUIS OBISPO COUNTY—Ajax Pet. Co.'s No. 1, 27-26-13, rig. Cholame Synd.'s Jack 2, 10-25-15, td 3641 ft, co. Little Cuyama Oil Co.'s No. 1, 3-10-26, dr shale 3951 ft.

SANTA BARBARA COUNTY—E. C. Arnold's Arnold-Apache 2, 8-8-33, td 6370 ft, pumping to sump. Carpinteria Oil Co.'s No. 1, 34-4-2, rur. O. C. Fields' Santa Rita 1, 11-7-33, td 3358 ft, trying to locate water. Standard's Los Flores Land 1, 27-9-33, dr shale 2160 ft. Wilshire Oil Co.'s Hollister 1, 35-5-33, rig.

VENTURA COUNTY — Oxnard Oil Co.'s Vanoi 1, 10-1-22, td 6302 ft, plug 6200 ft, to co and test on pump. So. Calif. Dr. Co.'s U.P. D. 2, 26-2-21, (Oxnard area), td 3086 ft, in volcanics, abn. Vaca Oil Explor. Co.'s Lennox 1, 6-1-21 (Oxnard Area), td 2885 ft, set 8 in 2575 ft, to test on pump. Richfield's McFarland 1, 13-2-21, dr shale 5930 ft. Texas Co.'s Rancho Santa Clara-Edwards 1, 13-3-21, dr shale 4201 ft; Yale Richardson 1, rig.

SOUTHERN CALIFORNIA

WILMINGTON AREA—Alford Dev. Co.'s Classif. Yards 3, 22-4-13, dr shale 5025 ft.

PALMDALE — Antelope Valley Pet. Co.'s No. 1, 17-6-12, rig.

NEWHALL—Barnsdall's Rancho S. F. 2, 26-4-17, dr hard shale 5512 ft.

MONTEBELLO—British American Oil Co.'s Pico 1, 12-2-12, sd 3990 ft.

PICO CANYON—Downey Oil Corp.'s No. 1, 36-4-17, td 2495 ft, fsh.

PALOS VERDES—Hunter-Devlin & Associates' No. 1, 17-4-4, td 5502 ft, plug 5262 ft, tested wet, to retest.

WALNUT—Julian & Criswell's Langstaff 1, 5-2-9, td 2855 ft, recovered fish, idle.

TICK CANYON—Mint Canyon Pet. Co.'s Jennings 1, 35-5-14, dr hard shale 750 ft.

GARVEY—W. E. Ramsey-Monte Christie Oil Co.'s Bass-Goodnight 1, 27-1-12, dr shale 2125 ft.

GARDENA—Texas Co.'s Gardena Com. 5-1, 30-3-13, dr 3350 ft.

NEWHALL DISTRICT—West Coast Dev. Corp.'s Newhall Land 1, 27-4-16, spud 12/9, abn.

ORANGE COUNTY—Shell's Harbeson 1, 9-4-10 (Anaheim), dr shale and gray sand 8300 ft; Core Hole "H" (Yorba Linda), rur.

SAN BERNARDINO COUNTY—Selegna Dr. & Prod. Co.'s Abacherti 3 (12-3-8), Chino, dr shale 360 ft.

COLORADO

BOULDER COUNTY — Boulder Prod. & Dev. Co.'s Harlow Estate 1, se ne 36-2n-70w, abn 765 ft. J. B. Furstenberg's Foote 1, se 20-1n-70w, dr 2900 ft.

LINCOLN COUNTY—Gulf's Union Pacific-Smith 1, csw se se 19-15s-58w, coring Arbuckle lime 6857 ft, topped at 6843 ft. Consolidated Smelting & Metals Corp.'s Hancock 1, ne ne sw 7-17s-52w, sd 2860 ft.

MOFFAT COUNTY—Kerlyn Oil Co.'s Government 1, se se 19-9n-99w, sd 3007 ft.

PITKIN COUNTY—Glencoe Dev. Corp.'s Government 1, nw nw nw 9-10s-89w, dr 2030 ft.

PARK COUNTY—South Park Oil Co.'s Lemarr 1, ne ne 34-11s-75w, dr 5435 ft.

RIO BLANCO COUNTY—Texas and California Co.'s Freeman-Government 1, cse nw 35-3n-94w, dr 6570 ft.

ROUTT COUNTY—Moore, Craig et al's Irwin 1, csw ne 33-7n-85w, rust.

FLORIDA

LAKE COUNTY—Oil Dev. Co. of Fla.'s Gulf Expl. Co. 2, se se 17-24s-25e, elev 120 ft, arr set pckr and re-test at 2600 ft, old td 6126 ft.

LEVY COUNTY—Fla. Oil Discovery Co.'s Sholtz 2, sw sw ne 9-15s-13e, dr 1920 ft (no recent report).

NASSAU COUNTY—St. Mary's River Oil Corp.'s Hilliard Turpentine Co. 1, nw ne se 19-4n-24e, elev 110 ft, installing new drill line, td 3810 ft, shale and gumbo.

SUWANEE COUNTY—Wm. G. Blanchard's Lucy Cotton 1, se ne 35-3s-11e, elev 70 ft, re-setting 16-in csg at 190 ft to eliminate caving hole.

ILLINOIS

BOND COUNTY — J. M. Huber Corp.'s Kunz 1, se nw nw 11-6n-5w, abd 3101 ft.

CHRISTIAN COUNTY — Parshall-Graham Co.'s Yockey 1, sw sw ne 36-15n-2w, pb 1967 ft, aw/1500 gals, swb dry, testing. Rogers Bros. et al's Johnson 1, ne se se 27-12n-2w, cor 2165 ft.

CLAY COUNTY—Southern Ill. Pet. Co.'s Knodacker 1, nw se sw 23-3n-7e, dr 2575 ft.

C. H. & C. Oil Co. et al's Duff 1, cs½ nw ne 7-3n-8e, testing. J. E. Milburn's Striegele 1, se nw ne 19-3n-8e, der. Gulf's Laughton 1, nw ne nw 29-4n-8e, abd 3234 ft. Bonnie Oil Co.'s Schnautz 1, se sw ne 31-4n-8e, dr 2696 ft. Vermillion Oil Co.'s Duff 1, cs½ ne se ne 19-3n-8e, to pb and dr with standard tools.

CLINTON COUNTY — Adams O&G Co.'s Schmidt 1, se se ne 2-1n-1w, td 1384 ft, p. 149 bbls oil 24 hrs, comp. W. C. McBride's Schultte 1, sw sw ne 3-2n-4w, dr 1052 ft. Holley & Willis' Muex 1, ce½ ne ne 18-3n-2w, dr 985 ft. P. J. Campbell, Allen 1, sw sw nw 28-3n-2w, lcn abd. Ellzy et al's Williams 1, sw nw sw 1-3n-1w, dk. McClanahan Oil Co.'s Hester 1, cn½ sw 26-3n-1w, abd 1724 ft. Schlosberg & Siegel's Monken 1, ne sw sw 4-2n-1w, dr 1000 ft.

COLES COUNTY—W. E. Hughes' Swango 1, csw ne 27-13n-9e, dr 175 ft.

EDWARDS COUNTY—Cotton & Laller's Hays 1, ne ne ne 4-1s-10e, lcn.

EFFINGHAM COUNTY—Kingwood & Carter's Bartel 1, ce¼ ne nw 26-6n-5e, td 4102 ft, testing. Carter's Pruemer 1, cw½ sw ne 11-8n-7e, abd 2664 ft.

FAYETTE COUNTY—Benedum & Trees' Moore-Clayton Van Zandt 1, sw sw sw 24-6n-1w, dr 2375 ft. Hausman et al's Northwestern Ins. Co. 1, csw ne 22-6n-1e, dr 1335 ft. Carter's Miller 1, cw½ nw nw 12-8n-3e, pb 3100 ft, aw/1000 gals, p 51 bbls oil, 17 hrs. Carter's Clow 1, ce½ sw ne 15-8n-3e, spd. Wilson & Stokes' Fee 1, nw sw ne 14-8n-3e, lcn.

FRANKLIN COUNTY—Robert Markham's Whittington 1, ce½ sw se 18-5s-3e, lcn. Washburn Pet. Corp.'s Neil 1, ce½ se se 6-5s-4e, dr 500 ft.

GREENE COUNTY—M. V. Yeager's Robinson 1, se sw nw 17-10n-11w, dr 905 ft. Nat'l Consumers Oil Co.'s Jackson 1, nw ne nw 21-11n-12w, hf salt water after shot, dd.

HAMILTON COUNTY—Texas Co.'s Silverman 1, ce½ sw nw 16-3s-7e, dr 500 ft.

JASPER COUNTY—LeWright et al's Wilkins 1, sw sw sw 36-6n-9e, c.&p. Denver P&R Co.'s Ochs 1, nw nw ne 33-6n-14w, rig. Hoffman et al's King 1, sw nw nw 20-8n-10e, dr 1890 ft.

JEFFERSON COUNTY—Carter's Tate 1, cw½ nw ne 10-1s-2e, pb 2000 ft, set 7-in csg 1980 ft. Sturbois & Tomberlin's Osborne 1, cnw se 8-2s-2e, ru mach. Nollen & Benoist's Kelley 1, ne nw ne 25-4s-2e, dr 1525 ft. E. J. Dees & W. J. Carter's Hamilton 1, ne sw nw 20-4s-3e, td 2911 ft, shot with 1 qt, co.

MADISON COUNTY—Strauss et al's Robeson 1, nw se ne 16-3n-10w, abd 3302 ft

MARION COUNTY—Dee & Nordan's Roddy 1, sw se sw 20-2n-3e, tools stuck 2182 ft. Alexander et al's Pope 1, ne ne ne 26-3n-1w, dr 1600 ft.

MASSAC COUNTY—Kahle et al's Harvick 1, sw sw sw 23-14s-3e, coring 2840 ft.

MONTGOMERY COUNTY—Schlosberg & Siegel's Nieman 1, cse sw 29-8n-5w, dr 708 ft.

RICHLAND COUNTY — Wiser Oil Co.'s Travette & Mattie Land Bank 1, cn½ ne se 8-2n-10e, abd. 3235 ft. Hollingsworth O&G Co.'s Waggoner 1, ne nw nw 5-3n-14w, dr 1129 ft. Mammoth P&R Co.'s McCauley 1, sw se nw 28-3n-9e, dr plugs and flo 182 bbls oil, 24 hrs by heads. Sam Raitman's Richey 1, cne nw 12-4n-14w, lcn. Bill Loving et al's Blue Ridge Church 1, ne ne se 26-4n-9e, bldg dk. Ray & Alford's Franklin 1, nw nw ne 34-5n-10e, rig.

SALINE COUNTY—C. F. Bolton's Beagle 1, nw nw ne 13-9s-7e, spd.

SHELBY COUNTY—J. A. English et al's McClory 1, se se ne 14-10n-6e, abd 2384 ft. E. Breazeale et al's Richardson 1, cnw nw 35-12n-14e, spd 18 ft.

WABASH COUNTY—Deck & Hays' Provident Mutual Life Ins. Co. 1, cse nw 25-1s-13w, rur.

WARDS COUNTY—Dr. W. F. Schmidt's Strenne 1, ne nw ne 5-1n-14w, spd. Leach Bros.' Lee 1, sw ne se 11-1s-10e, dr 2805 ft.

WASHINGTON COUNTY—Bittmer et al's Jesse 1, cse ne 16-3s-2w, lcn abd.

WAYNE COUNTY — Benedum & Trees' Craig 1, se se sw 28-2n-7e, abd 3280 ft. Gordon et al's Taylor 1, cnw sw sw 15-1n-7e, mim.

WHITE COUNTY—Davis & Harrell's Poorman 1, ne nw nw 5-4s-8e, dr 3185 ft.

WIILIAMSON COUNTY—Edward C. Snyder's Fleming 1, cse ne 9-10s-2e, mim.

NORTH LOUISIANA

BIENVILLE PARISH—De Soto O&G Co.'s Wm. Ashley 2, c sw se 15-16n-10w, rur. Gulf Oil Corp.'s Goodpine Oil Co. 1, se sw 25-14n-8w, elev 157 ft, massive anhydrite 5303-5420 ft, dr 6330 ft black shale. Hunt & Seaboard's Federal Land Bank 1, c s½ 10-16n-6w, elev 296 ft, 7-in csg 6867 ft, completed est 80 mil ft wet gas daily, producing through ¼-inch choke, not gauged, td 7879 ft.

BOSSIER PARISH — Union Prod. Co.'s Kerr 1, c se 24-17n-12w, dr 3485 ft (lower Marine test).

CADDO PARISH—W. J. Hunter and Homer Hurley's N. B. Stoer 2, c se sw 10-15n-15w,

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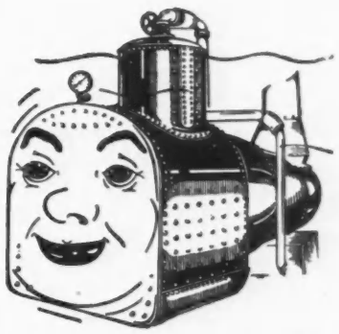

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rur. A. O. Olsen et al's R. T. Sharp 1, c w½ nw 15-18n-16w, elev 238 ft, acidized, tested est. 12 mil ft gas, drg, si for gauge, td 5624 ft. Prairie River Synd.'s Hutchinson 1, sw nw 15-15n-12w, elev 153 ft, top lower Marine 8380 ft, top Bodcaw sand 8775 ft, tested sg 8987-9110 ft, arr deepen, td 9141 ft. A. D. Robinson et al's Dickson 1, 22-20n-14w, elev 185 ft, top Nacatosh 870 ft, base chalk 1690 ft, coring 2422 ft.

CATAHOULA PARISH—G. E. Foster et al's W. S. Peck 1, c s½ 39-10n-8e, rur.

CLAIBORNE PARISH—W. L. McClanahan's J. T. Lewis 1, sw se 25-20n-7w, elev 400 ft, dr 5305 ft. Union Prod. Co. et al's Brownfield 2, c se nw 5-19n-5w, elev 235 ft, dr 8258 ft. Triangle Drlg. Co. et al's Hawks 1, 1-19n-6w, testing, td 5741 ft.

DE SOTO PARISH—Clear Lake Oil Co.'s J. A. Woolums 1, nw nw 29-12n-12w, cored sand so 2674 ft, wo 6⅝ in csg, td 2694 ft. Wright, Harris et al's (Kingston Oil Co.), C. B. Scott 1, ne ne 32-14n-13w, co caving hole, td 2778 ft. La. Seaboard O. R. Co.'s Lawrence 1, sw ne 36-12n-14w, dk.

LINCOLN PARISH—Gigantic Oil Co.'s R. L. Sanderson 1, nw se nw 30-18n-1w, sd 179 ft. E. T. Oakes, H. D. Easton et al's N. L. Griggs 1, c sw 36-18n-1w, elev 199 ft, top anhydrite stringer 4253 ft, massive anhydrite 4493-4713 ft, dr 5898 ft shale.

MOREHOUSE PARISH—W. J. Furlong, Jr. et al's Clark 1, 10-20n-7e, dr 4375 ft.

RED RIVER PARISH—Ark. Fuel Oil Co.'s Franklin Realty Co. 1, c ne nw 20-11n-9w, elev 135 ft, chalk 1305-1810 ft, top Blossom 2005 ft, top lower Cretaceous 2985 ft, dr 4858 ft.

SABINE PARISH—Phillips & Fox's Cook Land Co. 1, sw se nw 1-9n-12w, elev 295 ft, cored sandy lime, so 3320 ft, sd 3655 ft. Larry Romine's La. Long Leaf Lbr. Co. 1, c sw sw 7-5n-12w, elev 243 ft, Annona chalk 3598-3973 ft, Austin chalk 4820-4890 ft, top Georgetown lime 5010 ft, sd 5500 ft. Sutton Oil Co.'s Sabine Lbr. Co. 1, se nw ne 23-7n-14w, spd (10,000 ft test).

TENSAS PARISH—H. M. Jones' Chicago Mill & Lbr. Co. 2, c ne sw 31-12n-10e, dr 750 ft. Desha Lbr. Co. 1, c ne se 17-13n-11e, dk.

UNION PARISH—Joe Modisett et al's Frost Lbr. Co. 1, ne sw 14-21n-1e, elev 188 ft, top Travis Peak 4050 ft, 9⅝ in csg 4358 ft, top lower Marine 6145 ft-6200 ft, dr 6000 ft shale.

WEBSTER PARISH—Magnolia Pet. Co.'s Sexton 1, c sw ne 32-23n-9w, spd, setting surf csg (9000 ft test).

SOUTH LOUISIANA

ACADIA PARISH—J. E. Daniel's Setting 1, Trilby area, 17-7s-1w, sd 3680 ft. Gulf's Broussard 1, Midland area, 49-10s-2w, dr shale 9085 ft. Humble's Sarver 1, South Crowley prospect, 35-10s-1e, fsh 10,272 ft.

CALCASIEU PARISH—D & D Oil Co.'s Lutcher Moore 2, nw of Starks, 1-8s-13w, woc 8418 ft. Republic's Sabine Tram 1, w of Starks, 25-8s-14w, fsh 9670 ft. Union Sulphur's American Oil and Sulphur Co. 1, s of Sulphur, 16-10s-10w, dr shale 6898 ft.

CAMERON PARISH — Humble's Miami Corp. 1, Catfish Lake area, 8-14s-5w, dr shale 9868 ft. Shell's Hanszen 1, Chalkey area, 22-12s-6w, abn lcn. Superior's State 1, in Gulf of Mexico, 4-15s-8w, woc 7166 ft.

EAST BATON ROUGE PARISH—Cavalier's Elliott 1, Hope Villa area, 3-8s-2e, sd 7678 ft.

IBERIA PARISH—Texas Co.'s State 2-B, Vermilion Bay, 20-15s-6e, sd 9068 ft.

JEFFERSON DAVIS PARISH—Continental's Fay 1, se of South Roanoke, 31-10s-3w, dr shale 9678 ft. Humble's Stegall 1, nw of Welsh, 20-9s-5w, coring sand 7688 ft. Union Sulphur's Calcasieu National Bank 1, e of Woodlawn, 12-9s-8w, woc 8253 ft.

LAFOURCHE PARISH — Amerada-L. L. E.'s South Coast 1, Raceland area, 34-15s-19e, coring shale 10,296 ft. Gulf's State PP 3, Timbalier Bay, 36-23s-21e, preparing to test at 6968 ft.

ST. BERNARD PARISH—Gulf's State 2 RR, Lake Borgne, 38-14s-15e, dr shale 4681 ft.

ST. MARTIN PARISH—Shell's Frederick 1, Arnaudville area, 38-8s-5e, dr shale 7964 ft. Shell-Tide Water's Unit 1, Lake Verrett area, 11-14s-12e, mim. Texas Co.'s St. Martin Land Co. 10, Henderson, 15-8s-7e, dr lime 9141 ft.

ST. MARY PARISH—Shell's Barbour 1, Glenwild area, 21-15s-12e, dr 9301 ft. Texas Co.'s State 1, Bateman Lake area, 21-16s-12e, woc 10,930 ft.

TERREBONNE PARISH—Fohs and Delarge Oil Co.'s Buckley 1, Dulac area, 77-19s-17e, mim.

MICHIGAN

ALLEGAN COUNTY—Lentz's Hitzler 1, 34-4n-12w, dr 1250 ft. Huges Heinig's Lundburg 1, 29-3n-14w, dr 250 ft.

ARENAC COUNTY—R. D. Hill's Reinhart 1, 25-19n-5e, rig.

BAY COUNTY—Fortney's Smart 1, 7-16n-5e, Dundee 2809 ft, dr 2830 ft. Charles Weller's Dewyer 1, 20-16n-3e, dr shale 3300 ft. Gulf's Martson 1, 1-14n-4e, dr 1150 ft. Century Oil Co.'s Wilson 1, 27-17n-3e, dr 190 ft.

CLARE COUNTY—Sun Oil Co.'s Weldon 1, 14-19n-3w, dr 2100 ft. McClanahan Oil Co.'s Mortenson 1, 9-18n-5w, fsg 1665 ft.

CRAWFORD COUNTY—Dome Oil Co.'s Lindgren 1, 33-25n-3w, dr 2300 ft.

GLADWIN COUNTY—McClanahan's Connoly 1, 35-17n-2e, dr 3458 ft. W. E. Ross' Kinyon 1, 18-18n-2e, dr 160 ft. Rex Oil Co.'s Auer 1, 22-18n-2e, rig. Daily Crude Oil Co.'s Caplan 1, 10-19n-1e, rig.

GRATIOT COUNTY—Red Man Oil Co.'s Martin 1, 26-10n-3w, rig. Chartier Oil Co.'s Bolyard 1, 12-9n-4w, dr 2900 ft. Henry Krtzman's Nickert 1, 33-11n-4w, mim.

HURON COUNTY—C. W. Teater's Martin 1, 15-15n-11e, dr 2400 ft.

IONIA COUNTY—Rex Oil Co.'s Marion 1, 11-8n-5w, dr 230 ft.

ISABELLA COUNTY—Cryden & Rowmor's Smith 1, 35-15n-5w, dr 1600 ft. J. Golden Zabel's Kennedy 1, 25-14n-4w, dr 110 ft.

LAKE COUNTY—Cherry Valley Oil Co.'s Rice 1, 25-18n-12w, dr 1100 ft.

MECOSTA COUNTY—Sun Oil Co.'s Robart 1, 29-16n-7w, dr 900 ft. Frank Hebard's Weeks 1, 32-15n-7w, dr 600 ft.

MIDLAND COUNTY—Sun's State B1, 5-16n-1w, testing after 2000 gallon acid to 400 foot oil show, Dundee 3803 ft, td 3955 ft. Daily Crude Oil Co.'s State 1, 29-15n-2e, Berea 2424 ft, so 2470 ft, dr 2700 ft.

ROSCOMMON COUNTY—Maynard Smith's Eggleston 1, 32-21n-2w, r 1700 ft.

SAGINAW COUNTY—Bridgport Oil Co.'s Tobias 1, 35-11n-5e, dr 2350 ft. Weber Oil Co.'s Uebler 1, 9-11n-6e, dr 2050 ft. Hogan, Inc.'s Barnett 1, 2-11n-1e, dr 1900 ft. Darke Brother's Rockwell 1, 5-11n-3e, dr 740 ft.

SHIAWASSEE COUNTY—T. K. Buzard's McCullough 1, 12-6n-3e, dr 2100 ft.

TUSCOLA COUNTY—Jaenicke & Breham Oil Co.'s Boyce 1, 24-14n-7e, Dundee 2597 ft, pb from 2848 to 2842 ft, acidized testing so.

WASTHENAW COUNTY—W. F. Malow's Faust 1, 11-4s-6e, dr 250 ft.

WEXFORD COUNTY — G. H. Schrack's Fee 1, 17-22n-9w, rig.

MONTANA

CARBON COUNTY — Miracle Oil Co.'s Bailey 2, ne ne 3-6s-23e, dr 1640 ft. R. C. Tarrant's Heare 1, ne nw 14-6s-19e, dr 1425 ft.

FERGUS COUNTY—East Crest Oil Co., Ltd.'s 1, se sw 14-15n-19e, dr 570 ft. Flathead-Lewistown Co.'s 1, cne ne 13-15n-12e, dr 1200 ft. Whitetop O&G Co.'s 1, cne sw 35-14n-19e, dr 1030 ft.

WEST TEXAS

(This report is confined to Ordovician, Delaware and prospects west of the Pecos River).

BREWSTER COUNTY—Floyd C. Dodson & Duffy's Texas American Synd 1-A, near c ne ne GH&SA Ry. sec. 66, blk 10, elev 4228 ft, top Delaware shale 2297 ft, top Simpson 5980 ft, dr lime 6420 ft. Tony Hess et al's Mas. M. Decie 1, sec 7, blk 1, Georgetown Ry. Co. sur, sd 925 ft. G. H. Storey et al's J. P. Wilson 1, c se nw of T. & St. L. Ry. sec 3, blk 212, elev 3609 ft, sd 2545 ft.

CRANE COUNTY—Gulf Oil Corp.'s M. B. McKnight 3, near ne sw ne of PSL sec 9, blk B-21, Ordovician test, elev 2693 ft, dr 5710 ft; W. N. Waddell et al 7, c sw se PSL sec 4, blk B-27, elev 2537 ft, dk; W. N. Waddell et al 6, c ne sw of PSL sec 4, blk B-27, elev 2549 ft, top Simpson 5820 ft, top Ellenberger 6071 ft, flowed 200 bbls sul w per hr at 6126 ft, pb to 6092 ft, used 4000 gals acid, flowed 60 bbls water hourly, dry and abd. Loffland Bros. Co.'s Reidland 1, sec of PSL sec 2, blk B-27, elev 2570 ft, fsh 5434 ft. Wilcox O&G Co. et al's M. B. McKnight 1, c se nw of G&MMB&A Ry. sec 9, blk 46, elev 2773 ft, Ordovician test, top Yates 2380 ft, td 6177 ft, recovered dp now fsh cones.

CROCKETT COUNTY—Moore Bros. Corp. et al's Paul Perner 1, c nw¼ of I&GN Ry. sec 37, blk 2, elev 2560 ft, Ordovician test, top lime 1600 ft, contract completed, sd 8002 ft.

CULBERSON COUNTY—Jarrell, Earl Bell & Harrison's Caldwell 1, c sw of PSL sec 15, blk 109, Delaware test, sd 151 ft. Ross Brewer & Collins et al's C. M. Caldwell 1, sw¼ of PSL sec 14, blk 42, Delaware test, sd 1455 ft.

JEFF DAVIS COUNTY—H. F. Wilcox O&G Co.'s Jones-Coffield 1, nec of H&TC Ry. sec 121, blk 4, dr shale 3435 ft.

EL PASO COUNTY—Tri-State Oil Co.'s Chas. & L. M. Kinkel 1, ne ne ne sec 237, S.F. No. 7232, dr 3360 ft.

TOM GREEN COUNTY—Humble's Lewis & Wardlaw 1, near c ne se H&TC Ry. sec 5, blk 17, Ordovician test, elev 2142 ft, San Angelo lime 340 to 630 ft, dr 3790 ft.

HUDSPETH COUNTY—Haymon Krupp Oil & Land Co.'s K. S. Briggs 1, nw nw nw T&P Ry. sec 24, blk 73, Tsp. 7, dr 2170 ft; S. J. Thaxton 1, near sec ne se T&P Ry. sec 34, blk 74, Tsp. 6, dr 3430 ft.

LOVING COUNTY—Barnett Pet. Corp.'s W. D. Johnson 1-A, se se ne T&P Ry. sec 12, blk 56, Tsp. 1, elev 3044 ft, top Delaware lime 3675 ft, top sand 3704 ft, shot 170 qts nitro 3678-3728 ft, tested dry. Michigan O&G Co.'s M. Kyle 5, ne ne se T&P Ry. sec 20, blk 55, Tsp. 1, lcn; M. Kyle 6, nw se ne sec 20, rust at 3801 ft. Woodley Pet. Co.'s TP Land Trust 1-A, nwc n½s½ of T&P Ry. sec 21, blk 55, Tsp. 1, shot 75 qts 3935-47 ft, dd to 3962 ft, testing.

PECOS COUNTY — Aero Gas Ref. Co.'s Johnson-Skelly 1-A, n½ of H&GN Ry. sec 40,

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blk 8, sd 2073 ft. Mike L. Benedum et al's J. C. Trees 1, sw sw sw H&GN Ry. sec 9, blk 8, Ordovician test, elev 2528 ft, td 4488 ft, dr by stem. E. P. Cravens et al's J. C. Trees 1, ne nw se H&GN Ry. sec 63, blk 8, sd 2273 ft. J. J. Dorr et al's Payton 1, near se nw nw of H&GN Ry. sec 99, blk 8, elev 2439 ft, pay 1985-2037 ft, flowed 39 bbls 37 gravity oil initial; Payton 2, mim. Ed. Falvey et al's Joe C. Trees 1, sw nw nw of H&GN Ry. sec 63, blk 8, dr 965 ft. D. W. Francis et al's Westerman 1-A, nwc 186-ac lse, Rubian Phares sur, blk 166, elev 3155 ft, cased off upper gas, est. 3,500,000 ft dry gas 2903-08 ft, dr 2925 ft. L. B. Hoss & F. J. Downey's H. Cordez-Empire 1, nec of H&GN Ry. sec 81, blk 8, elev 2433 ft, top brown lime 1858 ft, pay 1975-78 ft, 300 ft oih, run pipe. Humble O&R Co.'s F. N. Belding 1, ne se sec 99, blk OW, elev 3085 ft, sandy-lime pay 2450-51 ft, tested 16.6 gravity oil, td 2718 ft, pb to 2622 ft, used 1000 gals acid, pumped 4 bbls oil, 78 bbls water 2nd 24 hrs, testing; H. H. Butz 1, sw¼ sec 104, blk OW, sd 730 ft; Ike T. Pryor 1, sw¼ sec 100, blk OW, elev 3082 ft, temp abd 201 ft. Magnolia Pet. Co.-Superior Oil Corp.'s J. H. McKee 1-A, near nw nw sw H&GN Ry. sec 24, blk 9, Ordovician test, elev 2385 ft, (jkd twice), trace gas 3100-03 ft, top Simpson 4775 ft, sd 4928 ft, bad titles. Thompson & E. R. Minshall's Michaelson 1, c nw nw of T. & St. L. Ry. sec 24, blk 146, elev 3023 ft, dr 1645 ft. Stanley A. Thompson et al's Elsinore Cattle Co. 1, se¼ of GC&SF Ry. sec 53, blk D, Ordovician test, elev 3938 ft, fsh 6521 ft. Trans-Pecos Oil Co.'s F. M. Gallaher 1, ne ne nw T&P Ry. sec 9, blk 51, Tsp. 10, sd 1620 ft; Popham Land & Cattle Co. 1-B, s½ of GH&SA Ry. sec 235, blk 11 (3rd hole), sd 1540 ft. H. F. Wilcox O&G Co.'s Cerf 1, near c ne sw of T. & St. L. Ry. sec 27, blk 130, dk.

PRESIDIO COUNTY — Brite Production Co.'s L. C. Brite 1, ne¼ of GH&SA Ry, sec 113, blk 12, tested 2½ bbls oil daily at 4367-75 ft, lost hole, dr by at 3100 ft.

REEVES COUNTY—Barnett Pet. Corp.-J. C. Hill and Continental Oil Co.'s Ely-Healy 1, c nw of PSL sec 38, blk 71, elev 3166 ft, Delaware test, top Castile 865 ft, dr 1950 ft. Grisham-Hunter Corp.'s T. P. Land Trust 1, ne¼ of T&P Ry. sec 40, blk 58, Tsp. 6, lcn. Ohio Oil Co.'s Popham Land & Cattle Co. 1, nw¼ of T&P sec 18, blk 55, Tsp. 10, mim. Sid W. Richardson et al's Eliza M. Brown 1, c sw¼ of H&GN Ry. sec 62, blk 4, Delaware test, mim.

SCHLEICHER COUNTY—John M. Cooper et al's Bert Page 2, c ne se GH&SA Ry. sec 40, blk L, elev 2289 ft, Ordovician test, cem cave 4730 ft. Tex-Tor Oil Corp.'s Judkins-Spencer 1, c sw¼ of A. & B. sec 33, blk A, Ordovician test, elev 2235 ft, dr 5090 ft.

SUTTON COUNTY—Ordovician Oil Co.'s J. T. Evans 1, ne ne ne sec 1, blk V-26, Lucy Stubblefield sur, elev 2126 ft, top Canyon, trace oil and gas, 2320 ft, top Strawn, carrying water with oil odor, 2860 ft, top Bend lime 3198 or 3315 ft, ur 3660 ft.

TERRELL COUNTY—R. A. Basurto et al's J. H. Phelps-Bates 1, near sec nw¼ sec 5, G. W. Turley sur, A-4, Ordovician test, elev 2185 ft, sd 5600 ft.

WARD COUNTY—Magnolia's Geo. Sealy 1-79, c ne ne sec 79, blk F, G&MMB&A sur, Delaware test, elev 2622 ft, dry and abd 4316 ft, no water; Geo. Sealy 2-46, ne sw ne sec 46, blk F, cem sur cas.

EAST TEXAS

ANDERSON COUNTY—Humble O&R Co.'s Southern Pine Lumber Co. 5-A (210-ac), John Morton sur, 2 mi ne Jarvis, elev 339 ft, top Woodbine 4284 ft, top Georgetown lime 5040 ft, top first anhydrite 7400 ft, massive anhydrite 7615-7793 ft and broken to 7828 ft, coring Pettit zone 8900 ft. H. L. Parsons et al's H. B. Hemby 1 (213-ac), John Gosett sur, 7 mi ne Navarro, elev 263 ft, Pecan chalk 4063-4235 ft, top Austin 5013 ft, dr 5250 ft.

BOWIE COUNTY—King Oil Corp.'s W. W. Ames 1, J. A. Talbott sur, 4½ mi nw Texarkana, elev 362 ft, cem sur cas.

CHEROKEE COUNTY—Merica Oil Co.-W. L. Stone's Cherokee Dev. Co. 1, A. J. Acker sur, 2 mi e Maydelle, dk.

DALLAS COUNTY—Mauldin Oil Co.'s W. E. Howell 1 (107-ac), S. Layton sur, 8 mi e Grapeland, sd 807 ft.

DELTA COUNTY—O. W. Killam et al's Delta Farming Assn. 1, J. Dollahite sur, 4 mi ne Sulphur Bluff, elev 348 ft, top Woodbine 2712 ft, sd 2920 ft.

FRANKLIN COUNTY—Stroube & Stroube's United Banks 1, nec tract, J. Bowman sur, 3 mi se Hagansport, Paluxy test, elev 373 ft, Pecan chalk 1307-50 ft, top Woodbine 3071 ft, top Georgetown 3625 ft, top Paluxy 4325 ft, water sand 4347-61 ft, dry and abd.

GREGG COUNTY—Humble O&R Co.-Gulf Oil Corp.'s E. D. Robertson 1 (11.4-ac), M. Mann sur, 2½ mi w by s of Longview, 4 mi e production, elev 272 ft, Austin chalk 3202-3341

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ft, top Georgetown lime 3341 ft, top Paluxy 4541 ft, top first Glen Rose 4876 ft, top anhydrite stringer 5617 ft, massive anhydrite 6214-6532 ft, top Travis Peak 7325 ft, dr red beds 7565 ft.

HENDERSON COUNTY—E. B. LaRue et al's Breedlove-Mills 1 (232½-ac), J. Dunn sur, 5 mi nw LaRue, elev 485 ft, sd 1942 ft. Tide Water Associated-Seaboard & Humble's McElreath-Suggett 2-C (149-ac), W. P. Wyche sur, 1½ mi nw Opelika, elev 452 ft, top Georgetown 5070 ft, top Paluxy 6087 ft, top first Glen Rose 6282 ft, top anhydrite 6991 ft, massive anhydrite 7315-7713 ft, flowed water at 7830 ft, top Pettit 8510 ft, top Travis Peak 9073 ft, td 9320 ft, pb to 8890 ft, perforated cas 8759-8890 ft, later pb to 8038 ft, perforated 7910-50 ft, complete, flowed 13½ bbls 58.7° distillate per hr and 8,000,000 ft gas daily via ½-inch choke.

HOPKINS COUNTY—Abbott & Rutland's Peyton 1-A, J. Burkham sur, 2 mi n Sulphur Bluff, elev 355 ft, top Woodbine 2884 ft, top Georgetown lime 3348 ft, top Paluxy 3750 ft, dry and abnd 4502 ft. Walter L. Goldston-Normandie Oil Corp.'s H. J. Smith 10 (450-ac), J. A. Craft sur, sub-Trinity test for Sulphur Bluff field, Pecan chalk 1510-1610 ft, dr 4100 ft.

LAMAR COUNTY—Blackman & H. W. McGee's J. M. Duff 1 (75-ac), J. C. Lamb sur, near Powderly, elev 503 ft, temp. abnd 170 ft. Cooper Bros. et al's L. B. Hayes 1, Luke Roberts sur, 1½ mi w Deport, elev 410 ft, cem 10-in cas 123 ft.

LIMESTONE COUNTY — Pure Oil Co.'s Kendrick 16-T (96-ac), 3 mi w Mexia and in field, elev 508 ft, top Woodbine 2896 ft, top Georgetown 3365 ft, top first Glen Rose 4270 ft, top broken anhydrite 5132 ft, Travis Peak series 5656-7676 ft, top lower Marine 7676 ft, td 8847 ft, cutting out dp at 6900 ft. Stanolind O&G Co.-Ramsey Pet. Corp.'s T. Norris 1 (40-ac), K. Thrasher sur, 5 mi n Kosse and on Thornton fault, elev 528 ft, Austin chalk 2791-2890 ft, top Woodbine 2980 ft, top Georgetown 3255 ft, top first Glen Rose 4026 ft, top first anhydrite 4886 ft, top Pettit 5375 ft, top Travis Peak 5523 ft, dr 6970 ft.

NAVARRO COUNTY—Mrs. Jane Robinson et al's Fortsan Bros. 1, Eli Smith sur, 5 mi ne Corsicana, elev 345 ft, top Austin chalk 1346-1585 ft, dr 1900 ft. Tom Sharp et al's E. B. McDowell 1 (65-ac), T. J. Jordan sur, ½ mi s Bazette, Pecan chalk 1980-2005 ft, Austin chalk 2835-2935 ft, sd 2970 ft.

RUSK COUNTY—J. W. Shipman et al's Citizens Nat'l Bank-L. T. Burton 1 (125-ac), J. J. Y'Barbo sur, 4 mi ne Henderson, elev 432 ft, base Georgetown lime 3676 ft, td 4500 ft, dry and abd.

UPSHUR COUNTY—L. & G. Oil Co.'s Henry Williams 1 (315-ac), L. S. Von Roeder sur, 2 mi nw Gracetown, elev 304 ft, cem sur cas. Tom Hunter & American Liberty Oil Co.'s Dr. Chas. Carter 1 (80-ac), J. H. Fields sur, 1½ mi n Kelsey, Trinity test, dr 1840 ft.

EAST TEXAS BORDER COUNTIES

CASS COUNTY—V. A. Hughes & Co.'s Lyster 1, Wm. Bateman sur, mim.

HARRISON COUNTY—Ark. Fuel Oil Co.'s (Cities Service), C. M. Abney 1, Eason Wilson sur, elev 278 ft, dr 3685 ft (Trinity test). Eastern Shrevetex Oil Co.'s Mable George 1, J. S. Powell sur, wosr, td 2505 ft.

PANOLA COUNTY—Magnolia Pet. Co.'s E. A. Hull 2, Thos. Applewhite sur, elev 222 ft, top Travis Peak 6024 ft, top lower Marine 8078 ft, pb to Travis Peak, dry at 6070 ft, pb to 5950 ft, tested est 4 mil ft gas, old td 8718 ft. C. K. Crew's J. C. Graves 1, McGowan sur, dr 1975 ft. H. Edwards Drlg. Co.'s Rushing 1, Mannan Smith sur, owdd, td 2950 ft (was Logansport P. L. Co. test).

SHELBY COUNTY—Allen et al's George 1, C. C. Tutt sur, sd 2950 ft. C. L. Cope's Pickering Lbr. Co. 1, Stephen English sur, rur. Portex Oil Co.'s Pickering Lbr. Co. 3, A. Hanson sur, rur. Redditt & Gray's Pickering Lbr. Co. 2, S. O. Pennington sur, rur. D. S. Ring's Windham 2, Jas. English sur, mim.

SOUTH TEXAS

SAN ANTONIO DISTRICT

ATASCOSA COUNTY—Stieren's Crawford 1, Crawford sur, pulling liner to dd from 3476 ft.

BASTROP COUNTY—Bibb's Lentz 1, Wilkinson sur, coring 2550 ft. Hantho-Nelson's Litton 2, Litton sur, swabbing 2259 ft. Southern Cross' Smith 1, Blalock sur, mim.

BEXAR COUNTY—Ball & DuBose's Miller 1, Christopher sur, set 20 ft of 10 in csg, dr. Hickok & Reynolds' Ewert 1, York sur, ru. Rosenburg's Carle 1, Rolen sur, dr 220 ft.

CALDWELL COUNTY—Brady & Pummel's Jackson 1, Morris sur, dr 2350 ft. Brown's Blackwell 1, Roe sur, (owdd) moved on star machine 2347 ft, pb in A/ch. M & R's Dunavant 1, Williams sur, lcn. Mac-Wag-Tree's Roberts 1, House sur, lcn. McNeill & Hantho-Nelson's Marino 2, Allen sur, dr 1454 ft. Owens & Wagner Smith 1, Roe sur, sp & sd. Tinkle's Blackwell 1, Roe sur, lcn.

DIMMITT COUNTY—Teas & Maryland's McKnight 1, I & GN RR sur, dr 5142 ft.

EDWARDS COUNTY—Auld's Henderson 1, sec 46, dr 2225 ft. Carter's Sweeten 1, GC & SF sur, running 9 in csg. Evans & Love's Brown 1, GWT & P sur, dr 3615 ft.

FRIO COUNTY—Amerada's Melms 1, Alexander sur, moved off cable tools fsg w/rotary 3921 ft. Pagenkopf & Jamieson's Houston est 1, Figuerroa sur, will remove cem/plug abt 12-15, pumping well to keep down fluid.

GUADALUPE COUNTY—Kallison's Burris 1, Nash sur, dr 1050 ft; Howell 1, Nash sur, dr 2675 ft. Kreiter & Douglas' Oliver 1, Smith sur, sd 1304 ft. Martin & Aronson's Gonzales 1, Nash sur, lcn. Riddle's Krueger 1, Thompson sur, sd 850 ft. Spiller's Wright 1, Cottle sur, lcn. Landon set 7 in at 545 ft to shut off water. Mattison's Gair 1, sec 53, mim.

MEDINA COUNTY—Walker's Riff 1, sur 43, dr 990 ft.

WILSON COUNTY — Pattico's Keller 1, Karnes County School Lands sur, dr 1122 ft, w/rotary. Richardson's Heirholzer 1, dr 927 ft.

ZAVALA COUNTY—Wilcox's Gilliam 2, sec 11, dr plugs, testing 3977 ft.

CORPUS CHRISTI DISTRICT

BEE COUNTY—Higgins' Mauldin 1, Pottevent sur, lcn. Jones, Russell, Booe's Ruhmann 1, Thurston sur, lcn.

BROOKS COUNTY—Standard of Texas' Mestina 10 (lse 1), Salinas sur, making abt 10 bpd via gas lift, not comp.; Mestina 3 (lse 2), Salinas sur, coring 1860 ft.

COLORADO COUNTY — Coyle-Concord's Broussard 2, Dufner sur, drk. Garvey's Dubak 1, Lapham sur, dr 6220 ft.

GOLIAD COUNTY—Goliad's Cole 1-A, lot 33, cutting out screen 5687 ft. Standard of Texas' Williams 1, Williams sur, digging pits, bldg drk. Swiger's Wood 1-B, Shearn sur, dr plugs, will perf 5008-12 ft.

HIDALGO COUNTY—Atlantic's McCalip 1, sec 175, ds parted abt 3800 ft, fsg 8965 ft. Gulf States' Delta Orchards 2, sec 94, coring 7960 ft. Y & B's Waite 1, sh 382, dr 5830 ft.

JACKSON COUNTY—Hargrove & Crosby's

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JIM WELLS COUNTY—Hill's Kuether 1, sec 52, coring 3180 ft. Howell's Talbert 1, La Vaca gr, perf 3600-07 ft, testing. Porter's Wolcott 1, Sartain Farm lots subd, dr 6290 ft.

KARNES COUNTY—Howard's Moczygamba 1, Seguin sur, perf 2165-70 ft, testing.

KENEDY COUNTY—Sal Vieja's Garcia 1, sh 59, sd 8135 ft.

KLEBERG COUNTY—Cinco's Kellam 1, sec 53, pits only. Magnolia's Dietz 1, Riviera Farm Lands, dr 1220 ft. Superior's Koch 1, sec 26, dr 5910 ft.

LIVE OAK COUNTY—Hannah's Wedding 1, Haughy sur, coring 1970 ft. H & H's Nichols 1, Henry sur, ru. Jones' West est 1, blk 561, ru. Loma's Pfluger 1, Turner sur, coring 820 ft; Striddle 1, Turner sur, lcn. Ranco's Fee 1, Poitevent sur, dr 3540 ft. Reliance's S. A. Joint Stock 1, Henry sur, lcn.

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NUECES COUNTY—Douglas' McKinzie 1, BS & F sur, dr 4220 ft. Richardson's Chapman 1, Ynojosa gr, coring 4420 ft. Southern Minerals' King 3, blk 6, dr plugs 4015 ft; Walker 1, King sur, dr 5715 ft. Texon's Horne 1, Palo Alto gr drk. Union's Galladay 1, Garcia gr, coring 5733 ft; Simmonds 1, Agua Dulce gr, coring 6855 ft.

REFUGIO COUNTY—Hogan's Kelly 1, Power sur, dr plugs 6437 ft.

SAN PATRICIO COUNTY—Bob's Green 2, Williamson sur, dr 5698 ft. Cain's Guy 1, sec 70, lcn. Conroe's Dougherty 1, McGloin sur, woc, 10 in at 800 ft. Plymouth's Grigham 1, sec 62, mim. Rutherford's George 1 Saddler & Garcia surs, dr 6530 ft. Schwab's Lane 1, Hart gr, sp.

VICTORIA COUNTY—Bowles' Robertson 1, Burnham sur, woc, in sd/tr hole 5643 ft. Echols' Dunseth 1, F. Perez sur, mim; Stubblefield 1, A. Perez sur, lcn.

WILLACY COUNTY—Magnolia's Armendiaz 1, sh 4, mi new boilers to dd from 7145 ft.

LAREDO DISTRICT

DUVAL COUNTY—C. K. Gravis' Frederick 1, Gibson sur, stdg 450 ft. F. J. Gravis' Vaello 1-A. San Andres gr, coring 5600 ft. Magnolia's DCRC 1, sur 61, sp; Lopez 1, sur 82, dr 1510 ft. Rudco's Ellis 1, GC & SF sur, dr 2925 ft.

JIM HOGG COUNTY—Darby's Holbein 2-B, sec 7, ru.

LASALLE COUNTY—Reed's Yeager 1, sur 39, dr 500 ft.

McMULLEN COUNTY—Mills Bennett's Nueces Land & Livestock 2, sur 234, ru. Howell & Richardson's Martin 1, sur 9, mim to wo; Martin 2, dr 290 ft. Richardson & McCarty's Martin 1, Weiting sur. dr 710 ft.

STARR COUNTY—Calderoni-James-Follette's Rodriguez 2, J of Camargo, running csg, 1489 ft. Collins' Guerra 1, sh 6, perf 6119-21 ft, swabbed sw, woo 6176 ft. Lowe & Wily's Gonzales 1, J. of Camargo, ru. Moss & Heard's Ricaby 6, J. of Camargo, pulled down drk, still blowing abt 2 mcf gas, some mud, little wtr, 1765 ft td.

WEBB COUNTY—Boysen & Jones' Watkins Ranch 1, sec 20 taking bids. Bridwell's Billings 1, sur 36, sp. Killam's Bruni est 4, sur 585, reaming to core 2710 ft. Kirkwood & Morgan's Garcia & Villareal 1, sur 720, 5½ in at 2005 ft, perforating 1967-74 ft, ran elec formation tester. Lewis' Garza 1, sec 48, coring 2710 ft. Mortimer's Welhousen 1, sur 73, coring 1428 ft. Mountain Townsite's Fee 1, sur 786, lcn.

ZAPATA COUNTY—Brown's Gutierrez 1, blk 12, dr 105 ft.

TEXAS GULF COAST

BRAZORIA COUNTY — Pure's Smith 1, Peach Point area, S. F. Austin sur, dr shale 7210 ft.

CHAMBERS COUNTY—Ingot and Merit Oil Co.'s Wright 1, Cedar Bayou area, C. Smith sur, testing 6428 ft. Salt Dome and Standard of Texas' State 1, in Galveston Bay, tract 178, driving piling.

FT. BEND COUNTY—Medford & Burke's Woods 1, s of Blue Ridge, Magnolia Place Subdivision, spudded.

GRIMES COUNTY—Hubert & Holt's Greer 1, Carlos area, P. B. O'Connor sur, ru.

HARRIS COUNTY—Texas Gulf's Rath 1, Aldine area, M. Sevey sur, dr shale 6915 ft.

JEFFERSON COUNTY—G. H. McCarthy's Broussard Trst 1, Cheek area, C. Hillbrandt sur, coring shale 7258 ft. Shell's McFaddin 1, McFaddin Ranch area, S. A. Pace sur, coring shale 5845 ft.

MATAGORDA COUNTY—Pierce Estate's Fee 1, n of Van Vleck, I&GN sur, dr shale 3250 ft. Sun's Robbins 1, n of Citrus Grove, C. H. Vandeveer sur, dr shale 8129 ft.

POLK COUNTY—National Standard's Carter Brothers 1, e of Leggett, M. S. Womack sur, fsh 2960 ft. Stewart Oil Co.'s Galloway 1, se of Livingston, J. W. Ringold sur, dr shale 3250 ft.

WALKER COUNTY—C. W. Markel et al's Hall 1, w of Huntsville, D. B. Guerran sur, dr clay 150 ft.

WHARTON COUNTY—Strake's Strunk 1, Lissie area, L. P. Jennings sur, dr shale 4509 ft.

UTAH

GRAND COUNTY—Cane Creek Oil Co.'s Government 1, nw sw 31-26n-21e, cmtg 12½-in csg at 250 ft, td 857 ft.

WYOMING

ALBANY COUNTY—Ohio's Griffin 2, csw se sw 2-21n-77w, dr 2865 ft.

FREMONT COUNTY—Stanolind's Johnson 1, cse se 3-33n-96w, dr 5587 ft.

NATRONA COUNTY—General Pet. Corp.'s Government 1, nw nw se 21-35n-77w, reaming to lower 11¾-inch csg from 1800 ft to td 4626 ft.

SWEETWATER COUNTY—Mountain Fuel Supply Co.'s John W. Hay, Jr. 1, ne se 2-19n-110w, dr 3960 ft.

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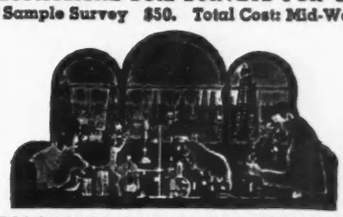
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OIL MAP COMPANY

An Important Announcement—

We take pleasure in announcing that, effective January 1st, 1938, THE PARKERSBURG RIG & REEL CO. becomes the exclusive distributor for SMITH SEPARATOR CORPORATION, Tulsa, Oklahoma.

This arrangement is made in the belief that it will expedite and improve the service of both concerns on a line of equipment which has for many years contributed to the safe, efficient, economical operation of the oil industry.

In expressing our appreciation of your patronage in the past, these pioneer concerns solicit the privilege of serving you in the future.

Signed

The Parkersburg Rig & Reel Co.

Smith Separator Corporation

NEW PRODUCTS FOR THE FIELD
Machinery • Tools • Equipment

PACKING MATERIAL
Crane Packing Company

Crane Packing Company, 1800 Cuyler Avenue, Chicago, has developed a new oil-proof flax packing, which is processed by a special treatment, whereby each fiber is metallized, graphitized and then impregnated with Crane-Prene, a special oil- and gasoline-proof binder compound.

The final step in the manufacture of this packing is to braid and interlock the processed chains of flax fibers into finished commercial sizes commonly used in pipe line pumps and valve stems. It is claimed of this packing that it gives extra long life, and has dependability.

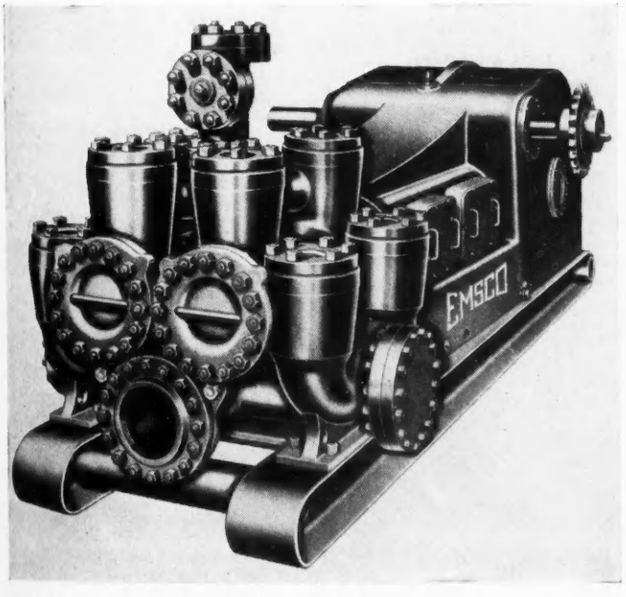
POWER SLUSH PUMPS
Emsco Derrick & Equipment Company

Emsco Derrick & Equipment Company, 6701-7101 South Alameda Street, Los Angeles, California, announces the new forged steel Fabriform power slush pumps. Thoroughly field tested, these pumps have proved their ability to withstand the severest continuous service encountered in modern deep well drilling with sustained efficiency and extremely low maintenance cost.

An important feature of the new power slush pumps is the positive system of mud exclusion from the crosshead chamber and crank case. The frame barrels are divided into compartments by forward and after partitions. The former is demountable and carries a renewable rubber bushing that closely fits the piston rod. The after partition carries the demountable stuffing box for the crosshead extension rod and seals the forward end of the crosshead chamber against foreign matter. The heavy crosshead extension rod receives the fluid piston rod and permits the use of a short, less expensive rod. A steel and rubber baffle plate at the junction of the rods forms an additional obstruction to the entrance of mud. A sump at the after end of each crosshead chamber definitely stops the entrance of any foreign matter into the gear case, either coming from the fluid end or from the oil filler opening.

Additional features which distinguish these new power slush pumps are: central lubrication of shaft bearings; complete and positive circulating oil bath for gears, cranks, crosshead slides and crosshead pin bearings; heavy-duty roller bearings on both shafts; an improved method of holding liners in place, which assures positive positioning of liner without the use of bolts or studs, and which also unseats the liner for removal, eliminating the necessity of a liner puller; renewable crosshead shoes, as well as top and bottom guides in which they travel.

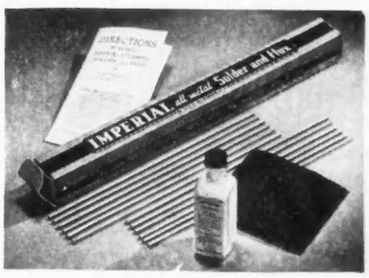
Built to withstand 6000 pounds actual test pressure, these pumps are recommended for 3000 pounds working pressure with 300 horsepower input rating.



Emsco Power Slush Pump.

METAL SOLDER
The Imperial Brass Manufacturing Company

The Imperial Brass Manufacturing Company, 1200 West Harrison Street, Chicago, has developed a new high-tensile strength solder and all-metal flux for low-temperature soldering of difficult-to-solder metals as aluminum, cast iron, stainless steel, monel and zinc base die castings, as well as other metals. It is claimed that while this solder is applied at low temperatures only slightly above those used for ordinary soft solders, it forms a bond with a tensile strength many times as great, and it can be used for every difficult production and repair job such as soldering of cast or sheet aluminum products, joining aluminum and stainless steel, aluminum and copper, etc.



Imperial All Metal Solder and Flux

The solder is designed for use in connection with the special flux which is furnished in conjunction with it, the flux being used to dissipate the oxides on the surface of the metal preparatory to application of the solder. Blow torch, welding torch or large soldering iron can be used for applying the solder.

DRILL PIPE ELEVATOR
Vaughn Oil Tool Cmpany

Vaughn Oil Tool Company, Huntington Park, California, recently developed a one-piece drill pipe elevator with no hinges, and which features a fast-opening door of revolutionary design.

This elevator, which has undergone months of testing and is now being used in many California wells, carries the entire weight at the string on one solid piece of steel. The equipment is made of 4140 heat-treated alloy steel pretested to stand stresses of 110,000 pounds to the square inch. Another notable feature is the built-in door which moves in a fixed, circular channel within the collar of the elevator. A bullet-shaped latch, impelled by a jam nut and spring, drops into a hole when the door is closed. Perfect line contact between door and pipe insures maximum safety at all times, even though the door should be only partly closed.

The simplicity of design and operation of the elevator is said to permit speed in getting strings in and out of holes, affords unusual ease of operation, provides utmost safety for the man on the rig and gives strength and endurance far in excess of even extreme demands.

PORTABLE HYDRAULIC PRESS
Bucyrus-Erie Company

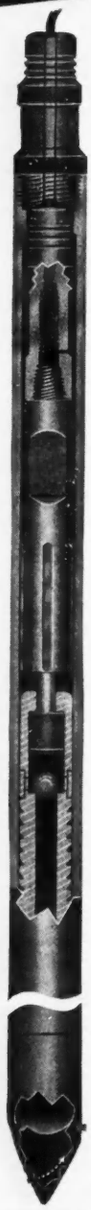
Bucyrus-Erie Company, South Milwaukee, Wisconsin, recently announced a new portable hydraulic press which can be used either as a puller, press or jack. This press is made expressly for use on heavy machinery to press large gears on shafts, pull bevel pinions, pull drum shaft gears, for press work on shovel gears, spiders, sprockets, swing shaft assembly, crowd shaft assembly, shipper shaft, and track mechanism. In addition it is ideal for use as a jack of capacity to 150 tons. As a jack the compact press cylinder (ram) weighing only 75 pounds is used to lift and can be set up in any position.

CLEANING OUT TIME IN HALF . . .

MIDCO

PLUNGER TYPE CLEAN-OUT

BAILER



★ Helps Eliminate Fishing Jobs.

★ Interchangeable Heads and Bottoms Assure Extreme Adaptability.

★ Operates Safely—Efficiently.

★ Seamless Steel Tube Provides Maximum Strength and Ruggedness.

★ One Piece, Large Opening Patented Bottom Exclusive Feature.

MidCo Bailers have proved successful not only in Oklahoma City field where they are used by practically all operators but in other oil producing states as well. The MidCo Bailer will pay you a profit over what you are trying to save with obsolete or inefficient equipment you might be using.

FOR RENTAL OR SALE

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Other Pats. Pending.

IF IT'S MIDCO ITS MODERN

This Week with the Industry's EQUIPMENT SUPPLIERS

Colonel W. F. Rockwell Returns from European Tour

Colonel W. F. Rockwell, president of Pittsburgh Equitable Meter Company, Pittsburgh, Pennsylvania, recently returned from an extensive European trip, which took him to England, Belgium, France, Germany and Italy.

COLONEL W. F. ROCKWELL, President, Pittsburgh Equitable Meter Company and Merco Nordstrom Valve Company

While in Europe Colonel Rockwell visited a number of factories and conferred with officials of seven different companies, which manufacture liquid meters, gas-pressure regulators and Nordstrom valves under the company's patents. At the same time, as a result of his trip, arrangements were made to take over several European patents.

Although Colonel Rockwell's trip was primarily to study new European industrial developments, he took the opportunity to inspect military trucks being manufactured for the Belgium government. He is still keenly interested in military affairs, being an advisory officer of the War Department's new program of motorization and mechanization of its ground forces.

L. H. Gilmer Company Names Cant District Manager

L. H. Gilmer Company, Philadelphia, announces appointment of D. A. Cant as district manager for Oklahoma on the company's various products. Cant is well known in the Mid-Continent field for his sales engineering activities during the past 10 years on power transmission and material handling equipment. His new headquarters will be in Tulsa.

International Harvester Company Builds New Plant

International Harvester Company, 180 North Michigan Avenue, Chicago, Illinois, is building a large addition to its tractor works at 2600 West 31st Boulevard, Chicago, completion of which is scheduled for May 1, 1938. The new addition, with buildings and equipment, will cost in excess of $1,000,000. When completed it will be one of the world's largest tractor manufacturing establishments.

A one-story building of saw-tooth design, with brick and steel walls and gypsum roof, the new structure will add 240,000 square feet of floor space, bringing the total floor space of the plant to approximately 1,400,000 square feet. TracTracTor machining and assembling operations will be conducted in the new space, with the assembly line lengthened to 500 feet and its present output of 40 crawler tractors per day increased to 75. An endless chain conveyor, representing the most modern type of progressive assembly of tractors, will be installed, while the machine shops are to be specially equipped for the milling and drilling of such heavy parts as main frames, crankcases, and crankshafts.

Railroad tracks will adjoin the north end of the new structure and an electric crane having a 58-foot span will operate over the entire loading area.

Union Wire Rope Corporation Appoints McCarns Representative

Union Wire Rope Corporation, Kansas City, Missouri, announces appointmentof A. P. McCarns to take charge of oil country sales in Texas. McCarns has represented the company in West Texas, with headquarters at Pampa, but as division sales manager for the state he will make his headquarters at Dallas.

Federal Motor Truck Company Promotes K. M. Schaefer

Federal Motor Truck Company, Detroit, announces appointment of K. M. Schaefer, as general sales manager in charge of all domestic sales and advertising activities.

Schaefer joined the company recently as assistant to the general manager. Prior to his connection with Federal Motor Truck Company he headed national sales for Norge Corporation, Silver Dome, Inc., and served in various sales and sales promotion capacities with Pontiac Motor Company.

The Corbett Corporation Changes Name

The Corbett Corporation, Houston, announces the firm's name now will be The Corbett-Wallace Corporation, with headquarters at 2418 Winter Street, Houston.

McGregor & Thilenius Handling Atlantic Metal Hose

Atlantic Metal Hose Company, New York, recently appointed McGregor & Thilenius, Tulsa, as representatives for Kansas and Oklahoma. The line of hose includes all types of flexible metal hose, in steel and copper, and seamless steel hose for use on Diesel engine exhaust lines.

Fairbanks-Morse Appoints T. M. Robie Manager of Diesel Sales

Fairbanks, Morse & Company, 900 South Wabash Avenue, Chicago, Illinois, has announced the appointment of T. M. Robie, as manager of the Diesel sales division.

Robie has been associated with Fairbanks-Morse since he returned from World War overseas service in 1919, serving in numerous capacities in the manufacturing and sales division. Since 1932 he had been in charge of Diesel

T. M. ROBIE
Manager of Diesel Sales Division of Fairbanks, Morse & Company

sales to resale manufacturers. Previously, he was associated with the New York branch office for one year and the Dallas office for two years, and was employed at the factory on Diesel engine designing, testing and building for nine years.

Upon his graduation from the University of Michigan in 1914, where he specialized in the study of internal combustion engines, Robie was employed by General Electric Company on locomotive test and on development of high-speed opposed-piston Diesel generating sets for stationary and Diesel-electric railway locomotive application. He operated Diesel power plants in New Mexico for two years previous to entering war service.

Paul Chabas Joins Staff of Schlumberger Engineers

Paul Chabas, engineer with Com-Compagnie Generale Geophysique, repagnie Generale Geophysique, recently arrived in the United States from France to join the staff of Schlumberger Well Surveying Corporation.

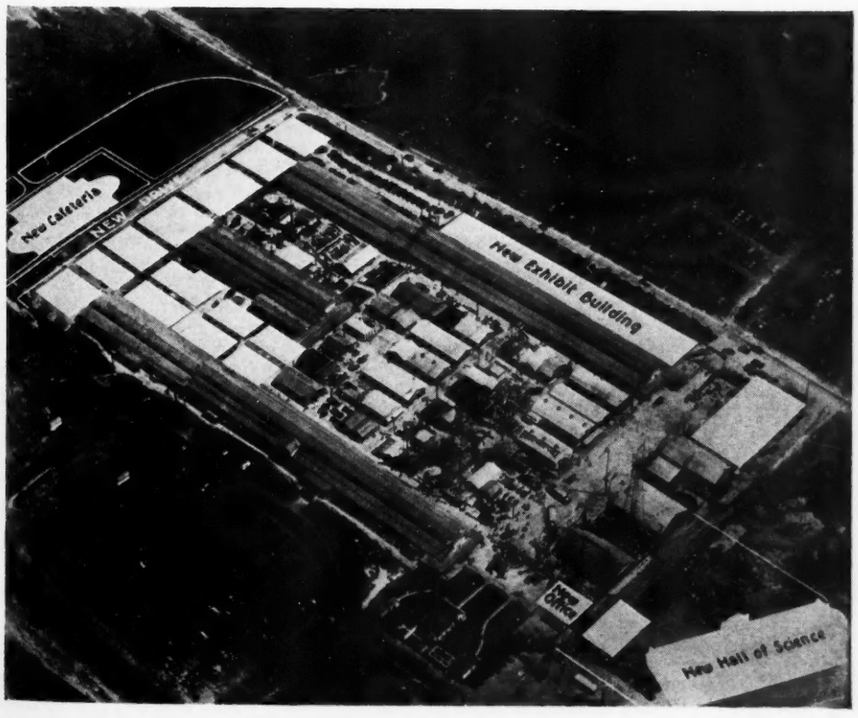
A. O. Smith Corporation Opens Pittsburgh Office

A. O. Smith Corporation, Milwaukee, Wisconsin, has opened a branch office in Pittsburgh, with R. L. Howes as manager. The office is located in Room 1231, 439 Seventh Avenue.

Tulsa Exposition Starts More Construction Work

January 1 will see grading and construction starting on 8 new buildings, which will house permanent company exhibits, a new hard-surfaced drive and 12,000 to 15,000 square feet of additional outside exhibit space for the tenth International Petroleum Exposition, to be held at Tulsa from May 14 to 21.

Approximately 200 men will be employed in grading the grounds for the outside exhibits, which will cover 40 percent of the total area of the exposition, making the new road, completing the new exhibit building, finishing the cafeteria and decorating the interior of the new Hall of Science. When the grading of the grounds is completed there will be an increase of 20 to 25 percent in the outside exhibit space and an increase of the total area of the exposition to 300,000 square feet.



Aerial view of the International Petroleum Exposition grounds showing new permanent exhibit buildings and new outside exhibit space. The white lines show the extension of the grounds and the white spaces show the increased exhibit space for the oil show, from May 14 to 21, at Tulsa.

Give Yourself a Christmas Present!

If you have a well which has been giving you more than its share of trouble, let the Christmas spirit of giving be your excuse for putting in an O'Bannon Arrow Pump. You will be giving yourself a fine present of trouble-free service.

The efficient, simple design of Arrow Pumps, cold drawn tube (Crolay when desired), alloy iron plunger, Chromalloy valves, extra large fluid passages, and a range of sizes for any desired volume assure you of the finest service.

SOLD BY SUPPLY STORES

Manufactured by
Walter O'Bannon Co.
Tulsa, Oklahoma

O'BANNON ARROW PUMPS

IT WILL BE A MERRY XMAS

WITH A MILLER

Be Santa Claus to yourself this year with a MILLER, the Sand Pump with the powerful suction action that quickly and at small cost removes sand and sediment increasing production.

INTERCHANGEABLE BOTTOMS
To Meet Every Condition

● BAILER BOTTOM
With the Bailer Bottom installed the MILLER is quickly changed to a Bailer giving you a combination of either Bailer or a Sand Pump in one tool.

● SAND BOTTOM
Used when tools are run and when well is shot to quickly remove loose material.

● STAR BOTTOM
Used for cutting the sand loose.

● CHISEL BOTTOM
(In Pump)
With this bottom tightly packed sand can be easily broken in small pieces so it can be picked up in the pump.

Write for Descriptive Folder and Price List

See Page 1186 COMPOSITE CATALOG

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FOR SALE BY SUPPLY STORES EVERYWHERE

Squeaks from the Bull Wheel

Like the Cat

"I don't like to mention it but that check you gave me has come back."

"Well, that sure is funny, Doctor, so did my lumbago!"

Hard to Keep Rules

An old Scotsman was smoking in the waiting room of a railway station. A porter said to him: "Don't you see that notice on the wall, 'No Smoking Allowed'?"

"Yes, I do," said the Scot, "but how can I keep all your rules? There's another on the wall, 'Wear Spirella corsets.'"

Petunias

Mrs. Newrich was fond of flowers and especially liked the salvia, but was not very reliable in getting the names right. She was giving directions to her gardener. "On this side of the walk," she said, "I want you to put out some salivas. Now what would you suggest for the other side?"

"Well, madam," answered the gardener solemnly, "maybe it would be a good idea to put some spittoonis there."

Late!

An Ontario farmer bought a large mantel clock, one of the kind that strikes the hours and half hours. That night he was awakened by the striking of the clock. Something had gone wrong with the mechanism and the chimes, instead of stopping with the usual 12, kept right on sounding. The bewildered farmer counted them up to 102, and then awakened his wife:

"Mary, for goodness' sake, get up! It's later than I've ever known it to be before!"

Career Man

"It ain't that I'm afraid to work, ma'am, but there ain't much doing in my particular line."

"Why, what are you?"

"I'm a window-box weeder, ma'am."

Advance Case

The lady was applying for a divorce.

"Your Honor," she said, "he broke every dish in the house over my head, and treated me cruelly."

"Did your husband apologize, or express regret over his actions at the time?" asked the judge.

"No, Your Honor, the ambulance took him away before he could speak to me."

Poor Kid!

A school teacher, after examination of the pupils in her class by the school nurse, wrote the following note to the parents of a certain little boy: "Your boy, Charles, shows signs of astigmatism. Will you please investigate and take steps to correct it."

The next morning she received a reply from the boy's father, who wrote: "I don't exactly understand what Charlie has done, but I have walloped him tonight and you can wallop him tomorrow. That ought to help some."

Chronic

A little boy at the school speech day began to recite.

"'Friends, Romans, countrymen — lend me your ears,'" he began.

"That must be the Jones boy," said one of the listening mothers, with feeling. "They're always trying to borrow something."

There's a Difference

What's this I hear about your little brother being punished by his teacher just because his nose itched?

Yes, but daddy, he didn't tell you he was scratching it with his thumb.

Don't Rush Me

I wish to marry your daughter, sir.

Young man, do you drink?

Thanks a lot, sir, but let's settle this other thing first.

Kid Stuff

"Drink your milk, Junior. It's from our own bossie."

"All I gotta say is, you got stuck with a sour cow!"

Peak of Pessimism

"Your crops are splendid . . . you can't kick this year."

"No . . . but don't forget these good crops are pesky hard on the soil!"

Well Known

"What's your name?" the store manager asked the young applicant for a job recently.

"Ford," replied the lad.

"And your first name?"

"Henry."

"Henry Ford, eh?" remarked the manager with a smile. "That's a pretty well-known name."

The boy looked pleased.

"Yes, sir, it ought to be," he replied proudly. "I've been delivering groceries around here for two years now."

The First Step

"Bridget," said Dennis timidly, "did ye iver think of marrying?"

"Sure, now," replied Bridget, looking demurely at her shoes. "Sure, now, the subject has niver entered me mind."

"Then it's sorry Oi am," said Dennis, as he started to leave the room.

"Wan minute, Dennis," called Bridget, as he went. "Ye've set me thinkin'."

Persistent

"I suppose they ask a lot for the rent of this sumptuous apartment."

"Yes, they asked Harold seven times last month."

Unsatisfactory Purchase

"Do you refund the money when an article isn't satisfactory?"

"That depends upon the article, Madam. What was it?"

"This book here."

"What is wrong with it?"

"I didn't like the way it ended."